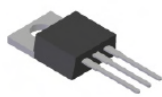


## Features

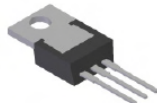
- Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Also Available in Green Molding Compound (Note 4)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

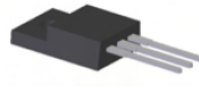
- Case: TO-220AB, ITO-220AB, TO263 (D<sup>2</sup>Pak)
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 ③
- Weight: TO-220AB – 1.85 grams (approximate)  
 ITO-220AB – 1.65 grams (approximate)  
 D<sup>2</sup>Pak – 2.1 grams (approximate)



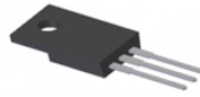
TO-220AB  
Top View



TO-220AB  
Bottom View



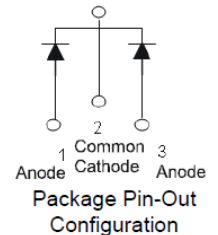
ITO-220AB  
Top View



ITO-220AB  
Bottom View



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

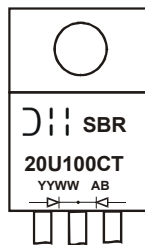


## Ordering Information (Notes 4 and 5)

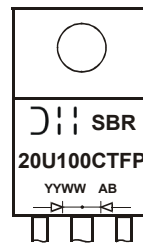
|  | Part Number      | Case                       | Packaging      |
|--|------------------|----------------------------|----------------|
|  | SBR20U100CT      | TO-220AB                   | 50 pieces/tube |
|  | SBR20U100CT-G    | TO-220AB                   | 50 pieces/tube |
|  | SBR20U100CTFP    | ITO-220AB                  | 50 pieces/tube |
|  | SBR20U100CTFP-G  | ITO-220AB                  | 50 pieces/tube |
|  | SBR20U100CTFP-JT | ITO-220AB (Alternate)      | 50 pieces/tube |
|  | SBR20U100CTB     | TO263 (D <sup>2</sup> Pak) | 50 pieces/tube |

- Notes:
1. EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free.html](http://www.diodes.com/quality/lead_free.html) 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 Green Molding Compound version part numbers, add "-G" suffix to part number above. Examples: SBR20U100CT-G.
  5. For packaging details, go to our website at <http://www.diodes.com/products/packages.html>.

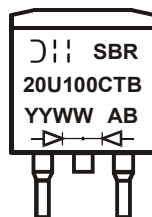
## Marking Information



SBR20U100CT = 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)



SBR20U100CTFP = 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)



SBR20U100CTB = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 YYWW = Date Code Marking  
 YY = Last two digits of year (ex: 08 = 2008)  
 WW = Week (01 - 53)

### 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> | 100             | V    |
| Working Peak Reverse Voltage  | V <sub>RWM</sub> |                 |      |
| DC Blocking Voltage   | V <sub>RM</sub>  |                 |      |
| Average Rectified Output Current  | I <sub>O</sub>   | (Per Leg)<br>10 | A    |
|   |                  | (Total)<br>20   |      |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub> | 200             | A    |
| Peak Repetitive Reverse Surge Current (2μS - 1Khz)  | I <sub>RRM</sub> | 3               | A    |
| Non-Repetitive Avalanche Energy (T <sub>J</sub> = +25°C, I <sub>AS</sub> = 5A, L = 8.5mH)           | E <sub>AS</sub>  | 140             | mJ   |
| Repetitive Peak Avalanche Power (1μs, +25°C)  | P <sub>ARM</sub> | 13,200          | W    |
| Isolation Voltage (ITO-220AB Only)<br>From terminal to heatsink t = 3 sec.                          | V <sub>AC</sub>  | 2000            | V    |

### Thermal Characteristics (Per Leg)

| Characteristic                          | Symbol                            | Value       | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance              | R <sub>θJC</sub>                  | 2           | °C/W |
| Package = TO-220AB                      |                                   |             |      |
| Package = ITO-220AB                     |                                   |             |      |
| Package = TO263 (D <sup>2</sup> Pak)    |                                   | 2           |      |
| 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> | —   | —    | 0.70 | V    | I <sub>F</sub> = 10A, T <sub>J</sub> = +25°C   |
|                          |                |     | 0.57 | 0.63 |      | I <sub>F</sub> = 10A, T <sub>J</sub> = +125°C  |
|                          |                |     | —    | 0.82 |      | I <sub>F</sub> = 20A, T <sub>J</sub> = +25°C   |
| Leakage Current (Note 6) | I <sub>R</sub> | —   | —    | 0.5  | mA   | V <sub>R</sub> = 100V, T <sub>J</sub> = +25°C  |
|                          |                |     |      | 25   |      | V <sub>R</sub> = 100V, T <sub>J</sub> = +125°C |

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

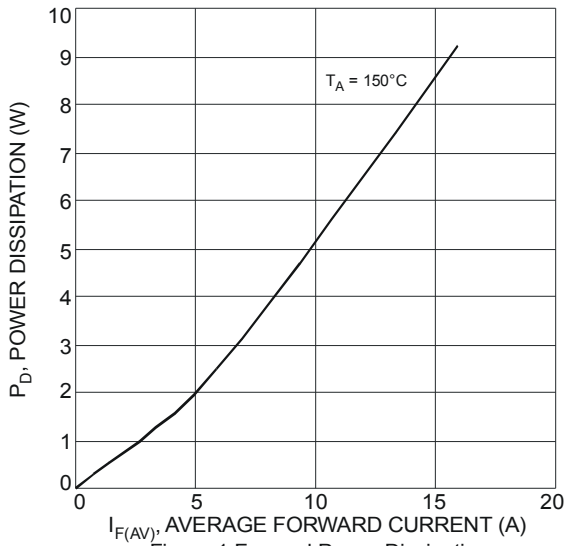


Figure 1 Forward Power Dissipation

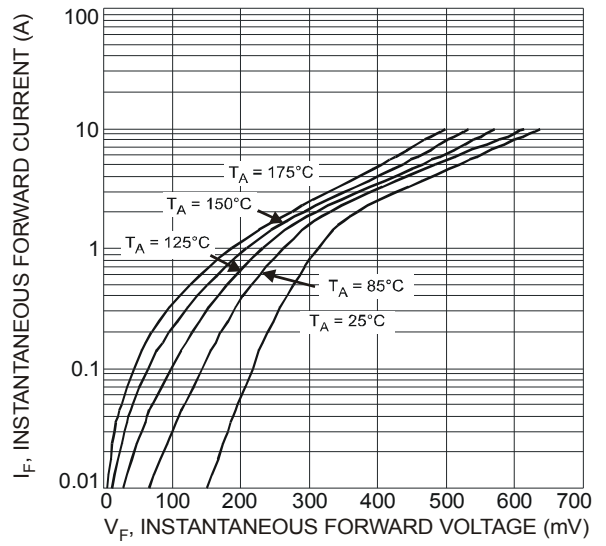


Figure 2 Typical Forward Characteristics

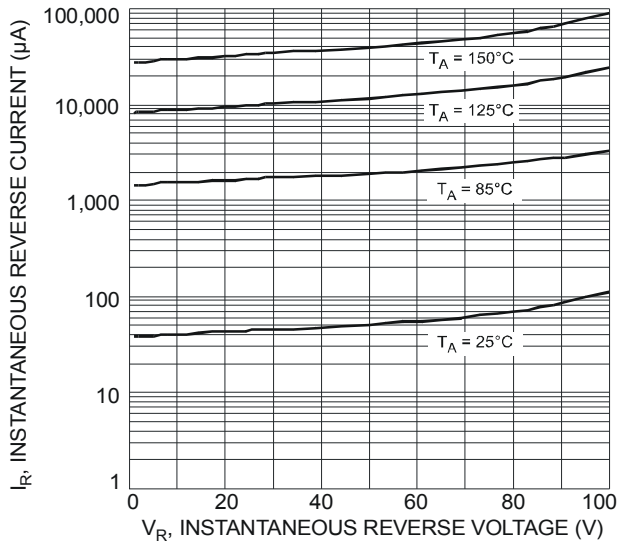


Figure 3 Typical Reverse Characteristics

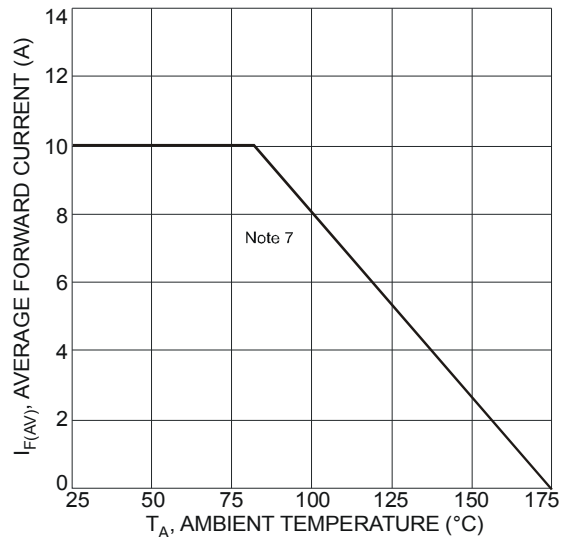


Figure 4 Forward Current Derating Curve

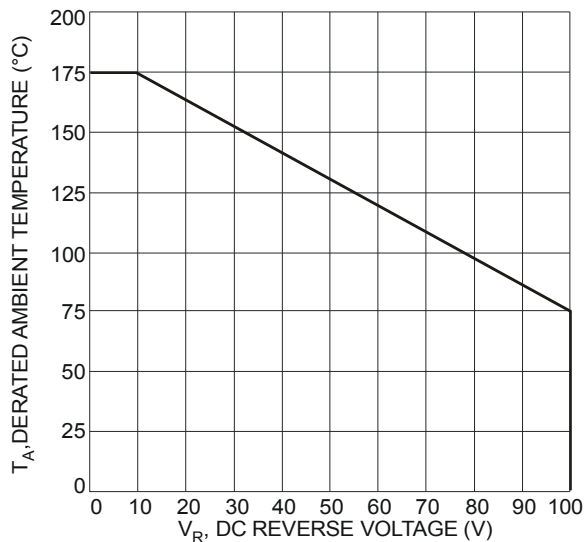
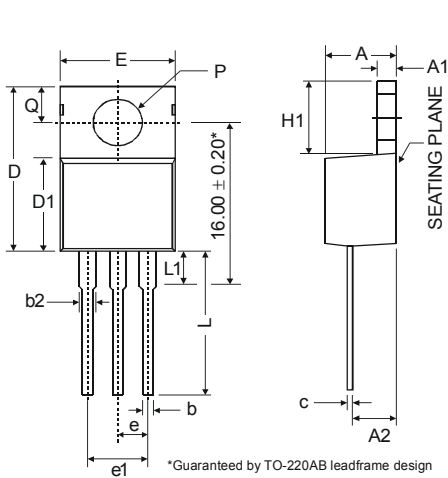


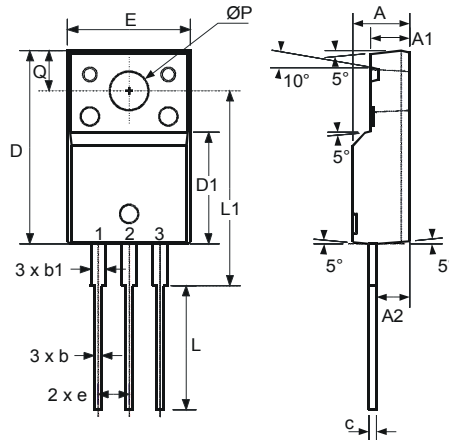
Figure 5 Operating Temperature Derating

## Package Outline Dimensions

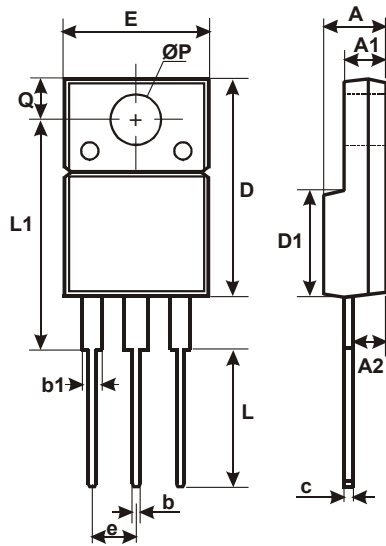
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



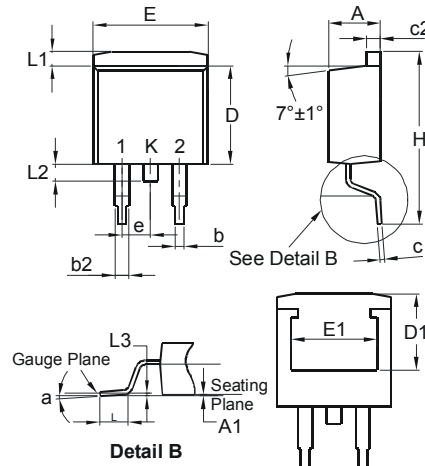
| TO-220AB             |       |      |       |
|----------------------|-------|------|-------|
| Dim                  | Min   | Typ  | Max   |
| A                    | 3.56  | -    | 4.82  |
| A1                   | 0.51  | -    | 1.39  |
| A2                   | 2.04  | -    | 2.92  |
| b                    | 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                    | 4.36 | 4.77  |
| A1                   | 2.54 | 3.1   |
| A2                   | 2.54 | 2.8   |
| b                    | 0.55 | 0.75  |
| b1                   | 1.2  | 1.5   |
| c                    | 0.38 | 0.68  |
| D                    | 14.5 | 15.5  |
| D1                   | 8.38 | 8.89  |
| E                    | 9.72 | 10.27 |
| e                    | 2.41 | 2.67  |
| L                    | 9.87 | 10.67 |
| L1                   | 15.8 | 17    |
| ØP                   | 3.08 | 3.39  |
| Q                    | 2.6  | 3.0   |
| All Dimensions in mm |      |       |



| TO263                |          |       |
|----------------------|----------|-------|
| Dim                  | Min      | Max   |
| A                    | 4.07     | 4.82  |
| A1                   | 0.00     | 0.25  |
| b                    | 0.51     | 0.99  |
| b2                   | 1.15     | 1.77  |
| c                    | 0.356    | 0.73  |
| c2                   | 1.143    | 1.65  |
| D                    | 8.39     | 9.65  |
| D1                   | 6.55     | —     |
| E                    | 9.66     | 10.66 |
| E1                   | 6.23     | —     |
| 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 |          |       |

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