

### Features

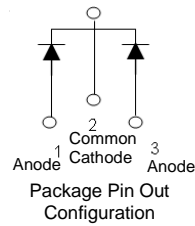
- Low Forward Voltage Drop
- Low Leakage Current
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- 175°C Operating Junction Temperature
- **Lead Free Finish, RoHS Compliant (Note 1)**
- **Also Available in Green Molding Compound (Note 2)**

### Mechanical Data

- Case: D<sup>2</sup>Pak
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208
- Weight: 1.6 grams (approximate)



Top View

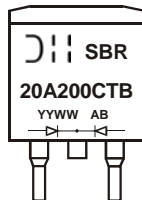


### Ordering Information (Notes 2 & 3)

| Part Number       | Case               | Packaging       |
|-------------------|--------------------|-----------------|
| SBR20A200CTB      | D <sup>2</sup> Pak | 50 pieces/tube  |
| SBR20A200CTB-G    | D <sup>2</sup> Pak | 50 pieces/tube  |
| SBR20A200CTB-13   | D <sup>2</sup> Pak | 800/Tape & Reel |
| SBR20A200CTB-13-G | D <sup>2</sup> Pak | 800/Tape & Reel |

Notes: 1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes  
 2. For Green Molding Compound version part numbers, add "-G" suffix to part number above. Examples: SBR20A200CTB-G.  
 3. For packaging details, go to our website at <http://www.diodes.com>.

### Marking Information



SBR20A200CTB = 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 - 53)

### Maximum Ratings @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 @ T <sub>C</sub> = 150°C   | I <sub>O</sub>   | 20    | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | I <sub>FSM</sub> | 180   | A    |

### Thermal Characteristics

| Characteristic                                   | Symbol                            | Value       | Unit |
|--|-----------------------------------|-------------|------|
| Maximum Thermal Resistance (per leg)             |                                   |             |      |
| Thermal Resistance Junction to Case (Note 4)     | R <sub>θJC</sub>                  | 4           | °C/W |
| Thermal Resistance, Junction to Ambient (Note 4) | R <sub>θJA</sub>                  | 43          |      |
| Operating and Storage Temperature Range          | T <sub>J</sub> , T <sub>STG</sub> | -65 to +175 | °C   |

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

| Characteristic           | Symbol          | Min | Typ   | Max  | Unit | Test Condition   |
|--------------------------|-----------------|-----|-------|------|------|--|
| Forward Voltage Drop     | V <sub>F</sub>  | -   | -     | 0.86 | V    | I <sub>F</sub> = 10A, T <sub>J</sub> = 25°C  |
|                          |                 |     | -     | 0.96 |      | I <sub>F</sub> = 20A, T <sub>J</sub> = 25°C  |
|                          |                 |     | 0.66  | 0.72 |      | I <sub>F</sub> = 10A, T <sub>J</sub> = 125°C   |
| Leakage Current (Note 5) | I <sub>R</sub>  | -   | 0.003 | 0.1  | mA   | V <sub>R</sub> = 200V, T <sub>J</sub> = 25°C   |
|                          |                 |     | 0.51  | 10   |      | 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,<br>di/dt = 100A/μs, T <sub>J</sub> = 25°C |

Notes: 4. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>  
5. Short duration pulse test used to minimize self-heating effect.

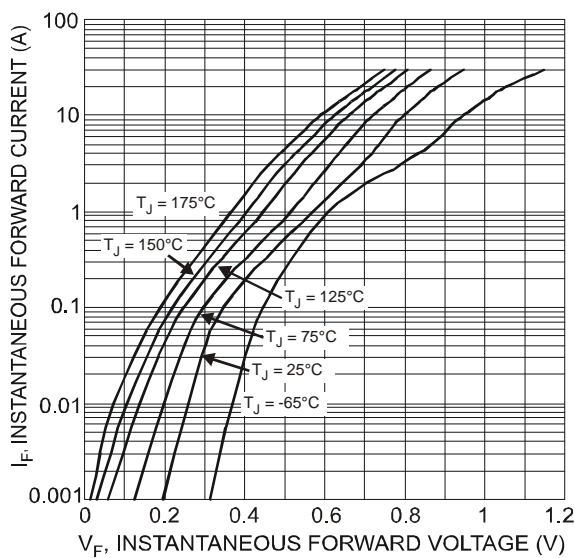


Fig. 1 Typical Forward Characteristics

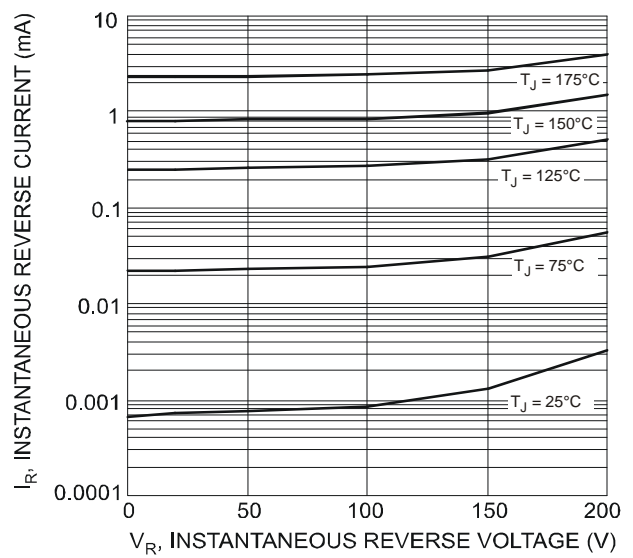


Fig. 2 Typical Reverse Characteristics

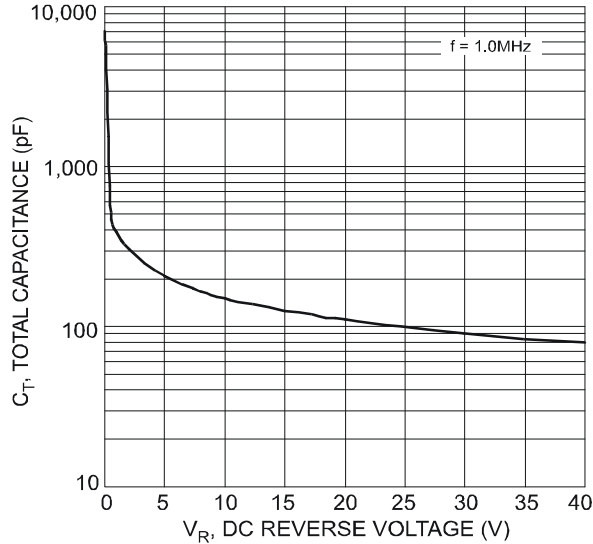


Fig. 3 Total Capacitance vs. Reverse Voltage

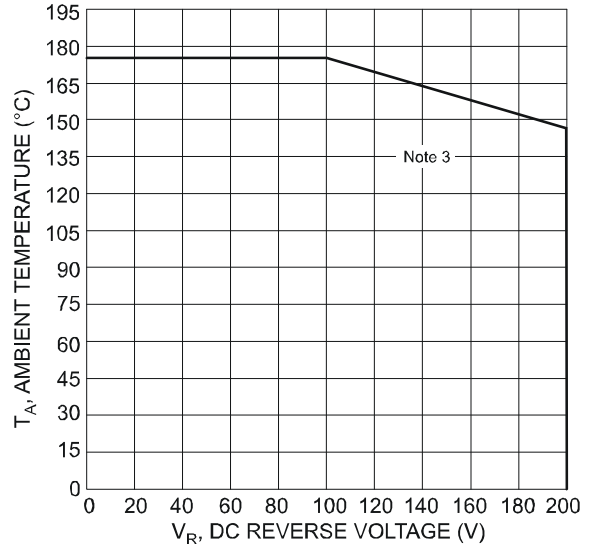
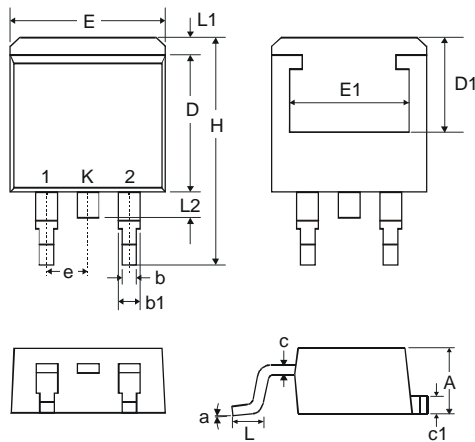


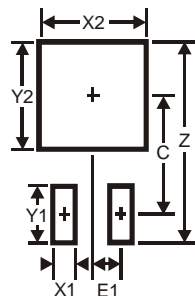
Fig. 4 Operating Temperature Derating

**Package Outline Dimensions**



| 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  |
| 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 |          |       |

**Suggested Pad Layout**



| 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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