

### Features

- Patented Trench SBR<sup>®</sup> Technology Provides Superior Avalanche Capability Versus Schottky Diodes, Ensuring More Rugged and Reliable End Applications
- Reduced Ultra-Low Forward Voltage Drop ( $V_F$ ); Better Efficiency and Cooler Operation
- Reduced High Temperature Reverse Leakage; Increased Reliability Against Thermal Runaway Failure In High Temperature Operation
- Soft, Fast Switching Capability
- TO263AB (D2PAK)
  - **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- Available in "Green" Packages: TO263AB (D2PAK)
  - **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
  - **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**

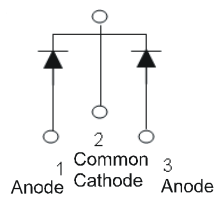
### Mechanical Data

- Case: TO263AB (D2PAK)
- 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
- Moisture Sensitivity: Level 1 per J-STD-020
- Weight: 1.6 grams (Approximate)
- Max Soldering Temperature +260°C for 30secs as per JEDEC J-STD-020

TO263AB (D2PAK)



Top View



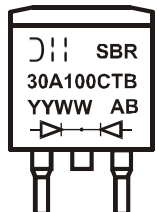
Package Pin-Out Configuration

### Ordering Information (Note 4)

|  | Part Number       | Case            | Packaging       |
|--|-------------------|-----------------|-----------------|
|  | SBR30A100CTB      | TO263AB (D2PAK) | 50 Pieces/Tube  |
|  | SBR30A100CTB-13   | TO263AB (D2PAK) | 800/Tape & Reel |
|  | SBR30A100CTB-G    | TO263AB (D2PAK) | 50 Pieces/Tube  |
|  | SBR30A100CTB-13-G | TO263AB (D2PAK) | 800/Tape & Reel |

- Notes:
1. EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
  2. See [http://www.diodes.com/quality/lead\\_free/](http://www.diodes.com/quality/lead_free/) 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 <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

### Marking Information



= Manufacturer's Marking  
 SBR30A100CTB = Product Type Marking Code  
 AB = Foundry and Assembly Code  
 YYWW = Date Code Marking  
 YY = Last Two Digits of Year (ex: 18 = 2018)  
 WW = Week (01 to 53)

**Maximum Ratings** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

| Characteristic   |                  | Symbol    | Value    | Unit |
|--|------------------|-----------|----------|------|
| Peak Repetitive Reverse Voltage  |                  | $V_{RRM}$ |          |      |
| Working Peak Reverse Voltage   |                  | $V_{RWM}$ | 100      | V    |
| DC Blocking Voltage  |                  | $V_{RM}$  |          |      |
| Average Rectified Output Current @ $T_C = +150^\circ\text{C}$  | Per Leg<br>Total | $I_O$     | 15<br>30 | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load            |                  | $I_{FSM}$ | 180      | A    |
| Repetitive Peak Avalanche Power (1 $\mu\text{s}$ , +25 $^\circ\text{C}$ )                                      |                  | $P_{ARM}$ | 8,000    | W    |
| Non-Repetitive Avalanche Energy<br>( $T_J = +25^\circ\text{C}$ , $I_{AS} = 7.5\text{A}$ , $L = 8.5\text{mH}$ ) |                  | $E_{AS}$  | 480      | mJ   |

**Thermal Characteristics**

| Characteristic   | Symbol          | Value       | Unit               |
|--|-----------------|-------------|--------------------|
| Maximum Thermal Resistance Junction to Case (Per Leg) (Note 5) | $R_{\theta JC}$ | 3           | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range                        | $T_J, T_{STG}$  | -65 to +150 | $^\circ\text{C}$   |

**Electrical Characteristics** (@ $T_A = +25^\circ\text{C}$ , unless otherwise specified.)

| Characteristic                 | Symbol | Min | Typ  | Max  | Unit          | Test Condition  |
|--------------------------------|--------|-----|------|------|---------------|---|
| Forward Voltage Drop (Per Leg) | $V_F$  | -   | 0.78 | 0.85 | V             | $I_F = 15\text{A}, T_J = +25^\circ\text{C}$<br>$I_F = 15\text{A}, T_J = +125^\circ\text{C}$ |
| Leakage Current (Note 6)       | $I_R$  | -   | -    | 100  | $\mu\text{A}$ | $V_R = 100\text{V}, T_J = +25^\circ\text{C}$  |
|                                |        |     |      | 10   | mA            | $V_R = 100\text{V}, T_J = +125^\circ\text{C}$   |

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

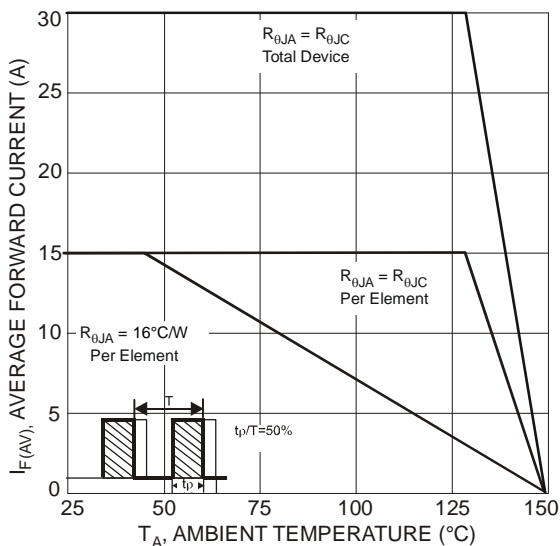


Figure 1 Forward Current Derating Curve

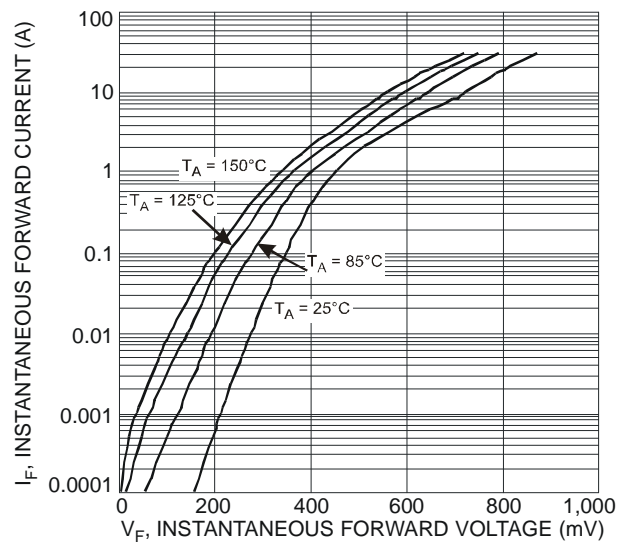
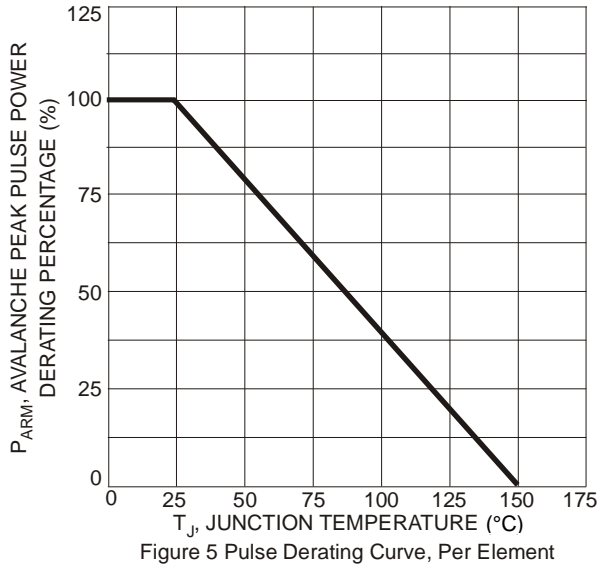
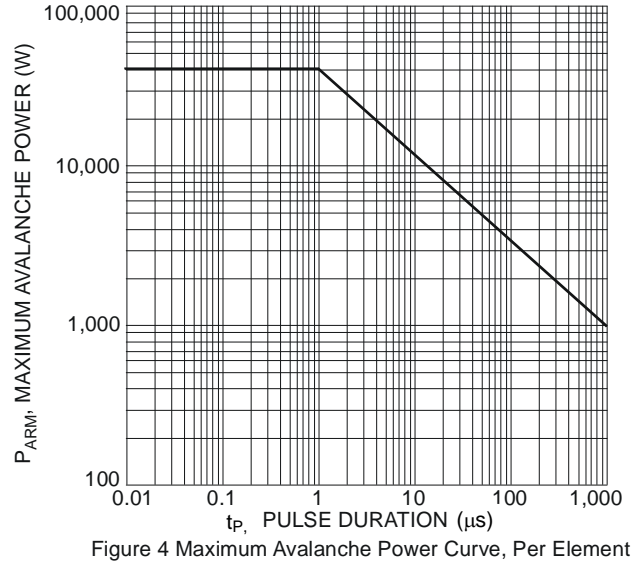
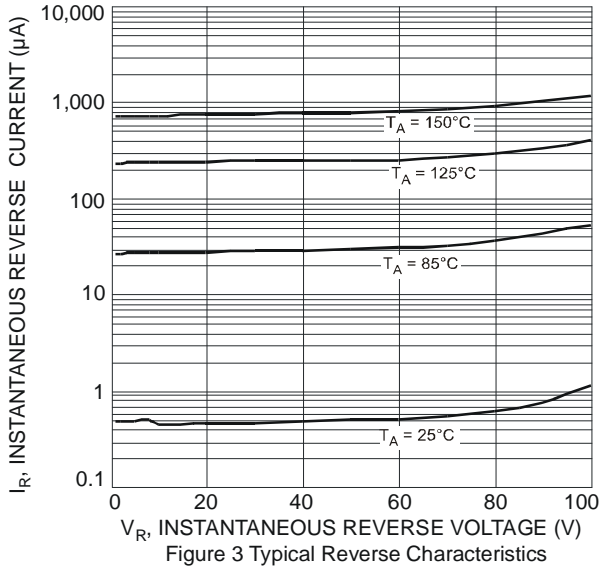


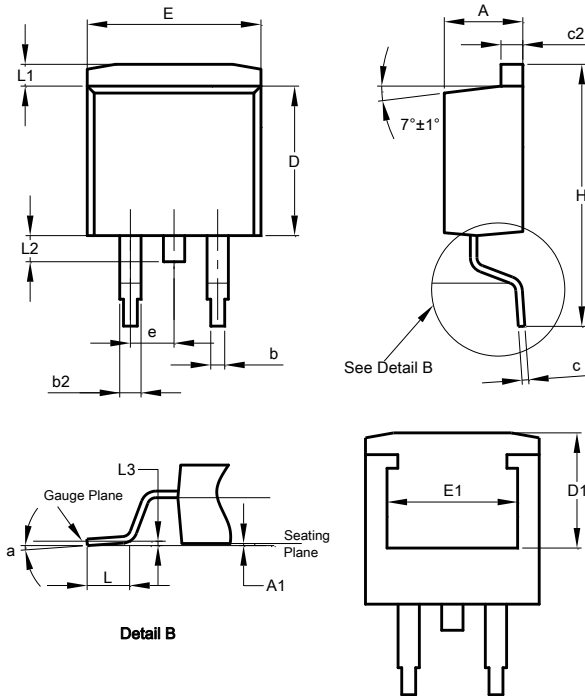
Figure 2 Typical Forward Characteristics



**Package Outline Dimensions**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**TO263AB (D2PAK)**

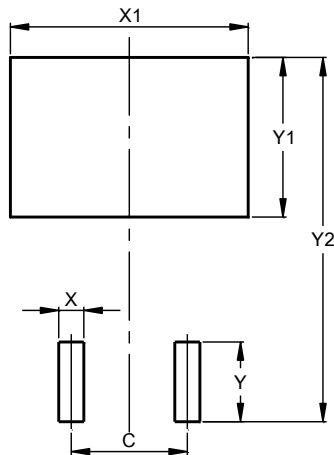


| TO263AB (D2PAK)             |          |       |       |
|-----------------------------|----------|-------|-------|
| Dim                         | Min      | Max   | Typ   |
| A                           | 4.07     | 4.82  | -     |
| A1                          | 0.00     | 0.25  | -     |
| b                           | 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     | 6.95  | -     |
| e                           | 2.54 TYP |       |       |
| E                           | 9.66     | 10.66 | -     |
| E1                          | 6.23     | 8.23  | -     |
| H                           | 14.61    | 15.87 | -     |
| L                           | 1.78     | 2.79  | -     |
| L1                          | -        | 1.67  | -     |
| L2                          | -        | 1.77  | -     |
| L3                          | -        | -     | 0.254 |
| a                           | 0°       | 8°    | -     |
| <b>All Dimensions in mm</b> |          |       |       |

**Suggested Pad Layout**

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

**TO263AB (D2PAK)**



| Dimensions | Value (in mm) |
|------------|---------------|
| C          | 5.08          |
| X          | 1.10          |
| X1         | 10.41         |
| Y          | 3.50          |
| Y1         | 7.01          |
| Y2         | 15.99         |

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