

Features

- Patented Trench SBR[®] 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

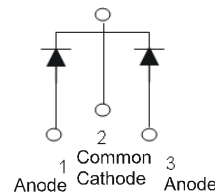
Mechanical Data

- 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



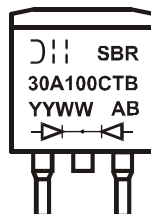
Package Pin-Out Configuration

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:
- EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant. All applicable RoHS exemptions applied.
 - See http://www.diodes.com/quality/lead_free/ for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 - Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 - 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 Total | I_O | 15 30 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | | I_{FSM} | 180 | A |
| Repetitive Peak Avalanche Power (1 μs , +25 $^\circ\text{C}$) | | P_{ARM} | 8,000 | W |
| Non-Repetitive Avalanche Energy ($T_J = +25^\circ\text{C}$, $I_{AS} = 7.5\text{A}$, $L = 8.5\text{mH}$) | | E_{AS} | 480 | mJ |

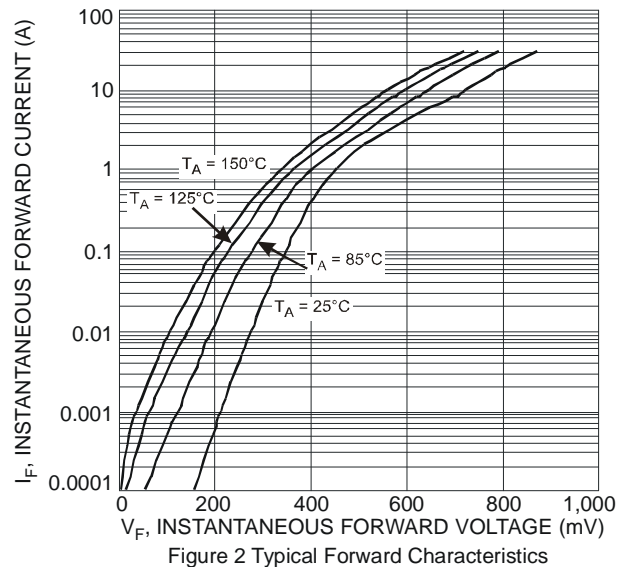
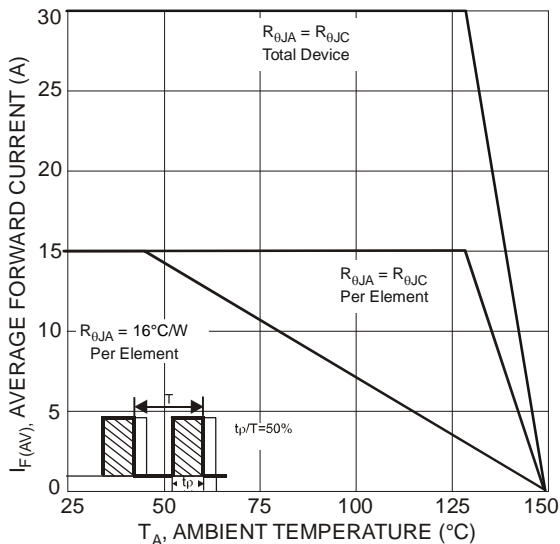
Thermal Characteristics

| 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 | $I_F = 15\text{A}, T_J = +25^\circ\text{C}$ $I_F = 15\text{A}, T_J = +125^\circ\text{C}$ |
| Leakage Current (Note 6) | I_R | - | - | 100 | μA | $V_R = 100\text{V}, T_J = +25^\circ\text{C}$ |
| | | | | 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.



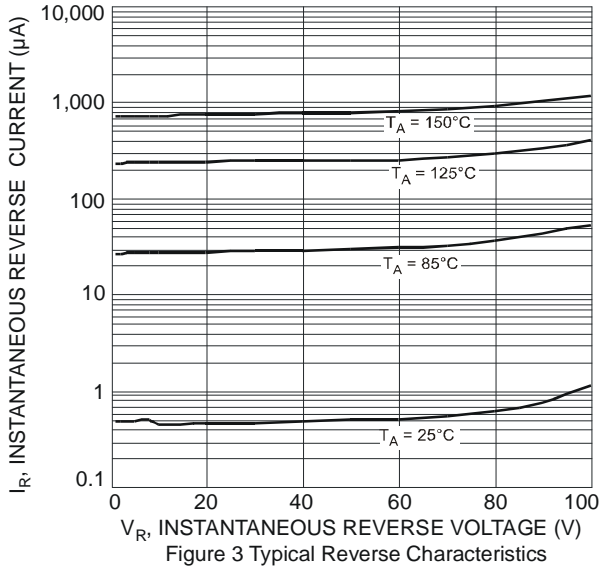


Figure 3 Typical Reverse Characteristics

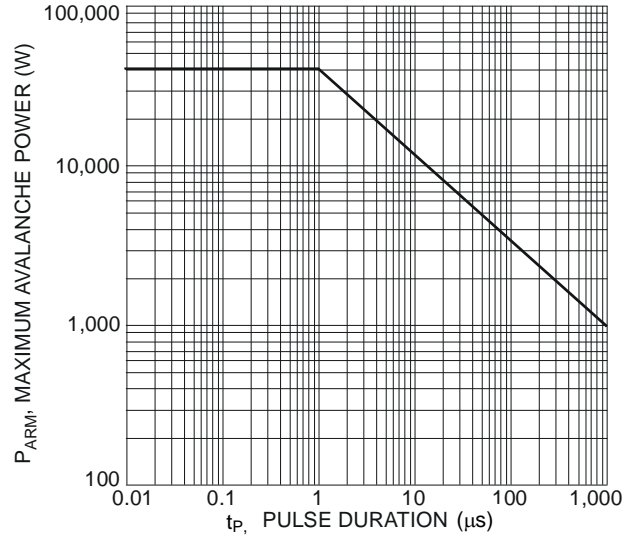


Figure 4 Maximum Avalanche Power Curve, Per Element

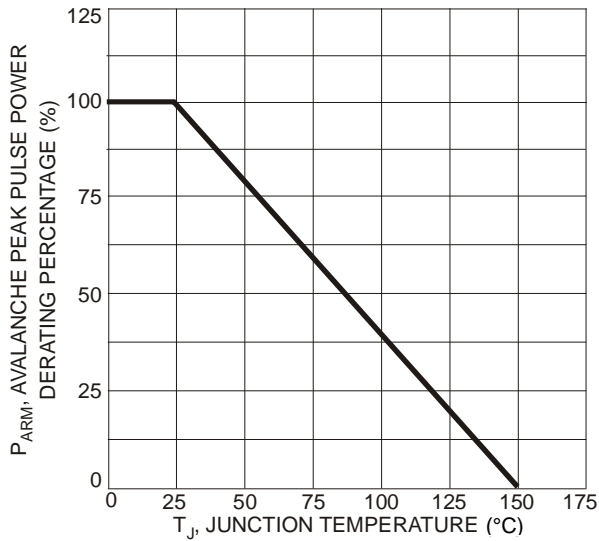
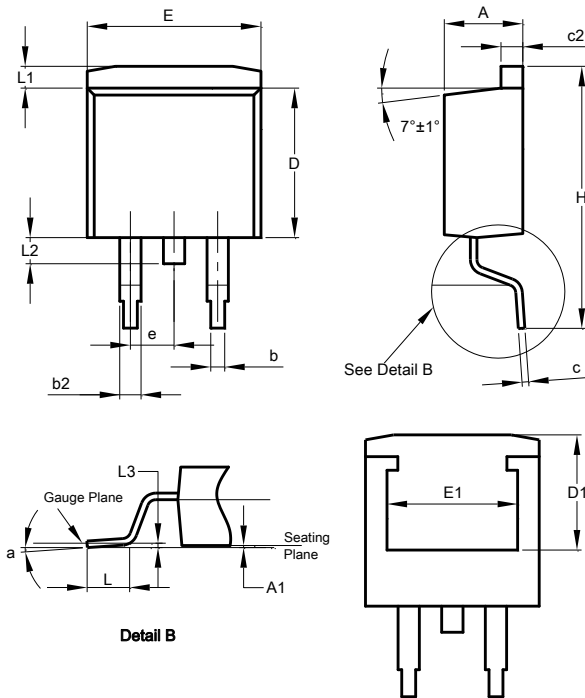


Figure 5 Pulse Derating Curve, Per Element

Package Outline Dimensions

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

TO263AB (D2PAK)

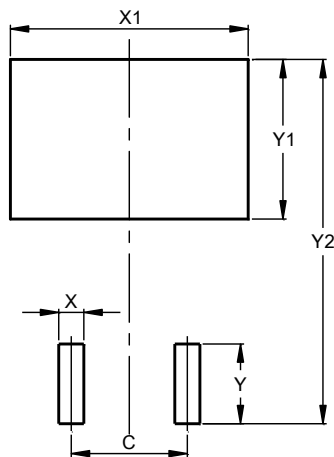


| TO263AB (D2PAK) | | | |
|-----------------------------|----------|-------|-------|
| Dim | Min | Max | Typ |
| A | 4.07 | 4.82 | - |
| A1 | 0.00 | 0.25 | - |
| b | 0.51 | 0.99 | - |
| b2 | 1.15 | 1.77 | - |
| c | 0.356 | 0.73 | - |
| c2 | 1.143 | 1.65 | - |
| D | 8.39 | 9.65 | - |
| D1 | 6.55 | 6.95 | - |
| 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° | - |
| All Dimensions in mm | | | |

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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