

Product Summary (Per Leg)

| V_{RRM} (V) | I_o (A) | V_F (MAX) (V) @ +25°C | I_R (MAX) (mA) @ +25°C |
|---------------|-----------|----------------------------|-----------------------------|
| 100 | 10 | 0.80 | 0.15 |

Description and Applications

Packaged in the robust industry-standard TO263 (D²PAK) package, the SBRT20S100CTB provides very low V_F and excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode or blocking diode in:

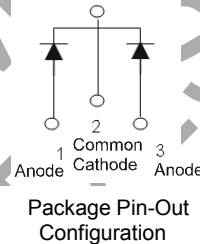
- DC-DC Converters
- AC-DC Adaptors

Features and Benefits

- 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
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: TO263 (D²PAK)
- Case Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Matte Tin Finish. Solderable per MIL-STD-202, Method 208 ⁽³⁾
- Polarity: See Below
- Weight: TO263 (D²PAK) – 1.6 grams (Approximate)

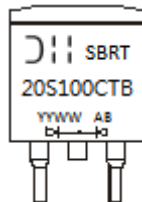


Ordering Information (Note 4)

| Part Number | Case | Packaging |
|------------------|-------|-----------------|
| SBRT20S100CTB-13 | TO263 | 800/Tape & Reel |

- 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 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 <http://www.diodes.com/products/packages.html>.

Marking Information



SBRT20S100CTB = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last Two Digits of Year (ex: 14 = 2014)
 WW = Week (01 - 53)

Maximum Ratings (@ $T_A = +25^\circ\text{C}$, 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_{RRM} | 100 | V |
| Working Peak Reverse Voltage | V_{RWM} | | |
| DC Blocking Voltage | V_{RM} | | |
| Average Rectified Output Current (Per Leg) | I_O | 10 | A |
| (Total) | | 20 | |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load (Per Leg) | I_{FSM} | 120 | A |

Thermal Characteristics (Per Leg)

| Characteristic | Symbol | Value | Unit |
|---|-----------------|-------------|--------------------|
| Typical Thermal Resistance, Junction to Case (Note 5) | $R_{\theta JC}$ | 5 | $^\circ\text{C/W}$ |
| Operating and Storage Temperature Range | T_J, T_{STG} | -55 to +175 | $^\circ\text{C}$ |

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

| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|-------------------------------|--------|-----|------|------|------|--|
| Forward Voltage Drop (Note 6) | V_F | — | 0.56 | 0.62 | V | $I_F = 5A, T_J = +25^\circ\text{C}$ |
| | | — | — | 0.57 | | $I_F = 5A, T_J = +125^\circ\text{C}$ |
| | | — | 0.74 | 0.80 | | $I_F = 10A, T_J = +25^\circ\text{C}$ |
| | | — | — | 0.75 | | $I_F = 10A, T_J = +125^\circ\text{C}$ |
| Leakage Current (Note 6) | I_R | — | 0.05 | 0.15 | mA | $V_R = 100V, T_J = +25^\circ\text{C}$ |
| | | — | — | 15 | | $V_R = 100V, T_J = +125^\circ\text{C}$ |

Notes: 5. Test with aluminum substrate 2oz, 2in. sq. copper pad.
6. Short duration pulse test used to minimize self-heating effect.

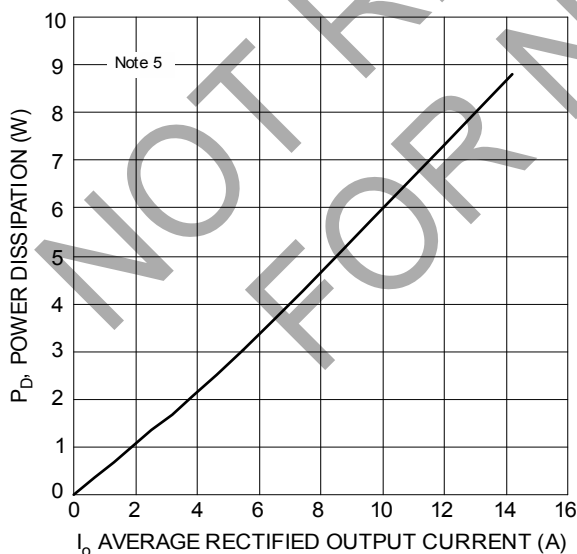


Figure 1 Forward Power Dissipation

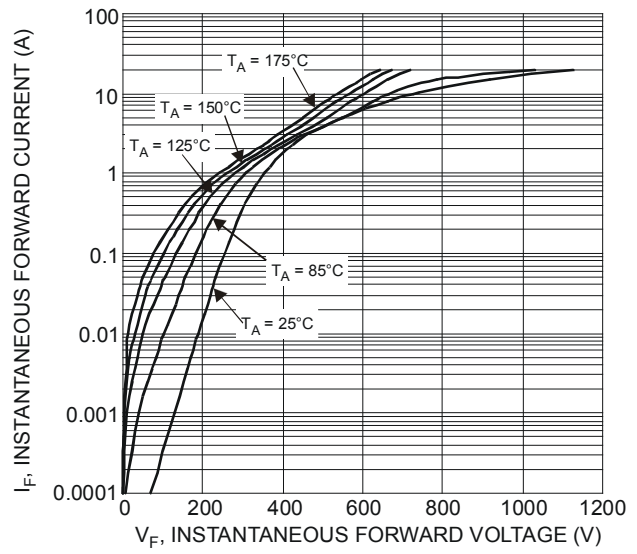


Figure 2 Typical Forward Characteristics

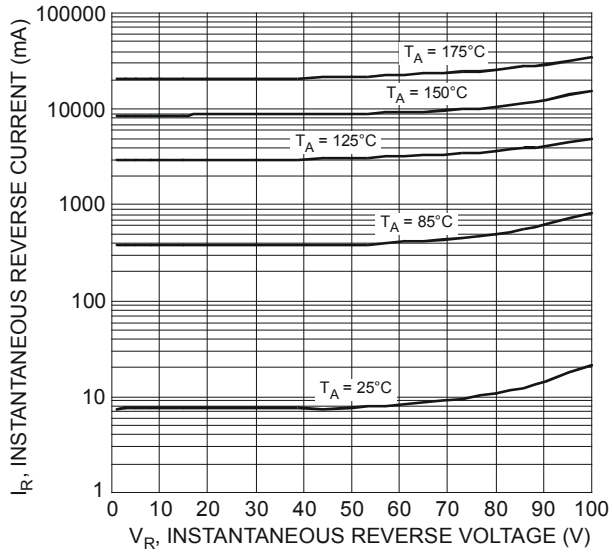


Figure 3 Typical Reverse Characteristics

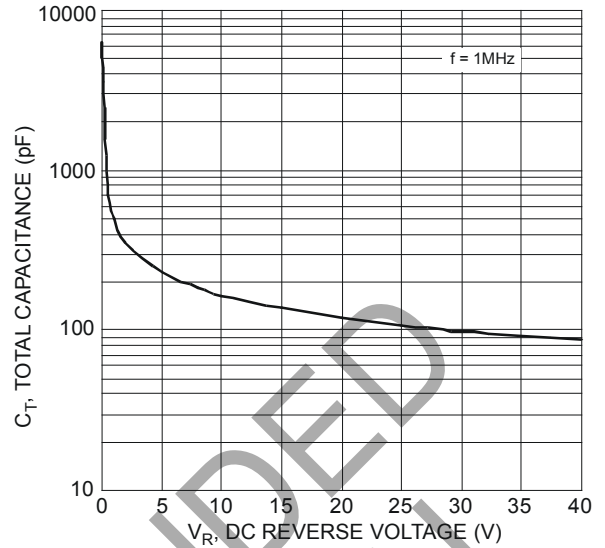


Figure 4 Total Capacitance vs. Reverse Voltage

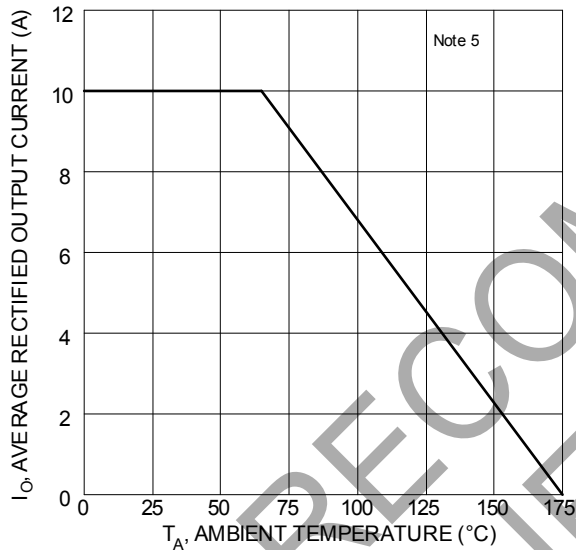
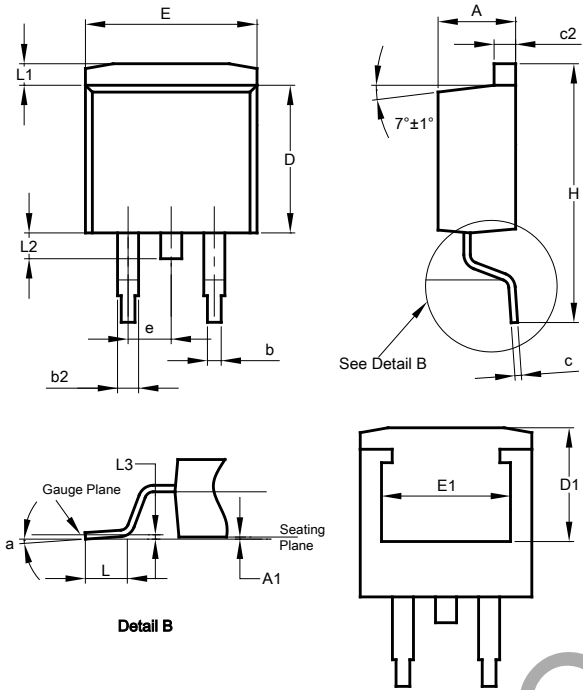


Figure 5 Forward Current Derating Curve

NOT RECOMMENDED FOR NEW DESIGN

Package Outline Dimensions

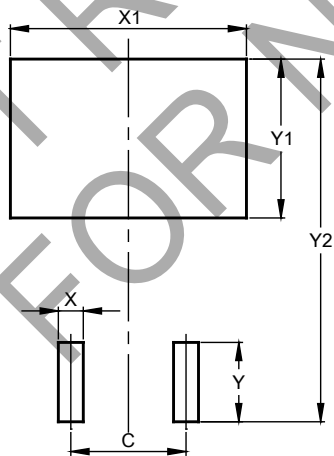
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for the latest version.



| 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 AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



| 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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