

Product Summary

| V_{RRM} (V) | I_o (A) | $V_F(MAX)$ (V) @ +25°C | $I_R(MAX)$ (mA) @ +25°C |
|---------------|--------------|---------------------------|----------------------------|
| 45 | 15 (Per leg) | 0.55 | 0.5 |

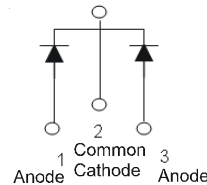
Description and Applications

The SBR30A45CTB 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



Top View




Package Pin-Out
Configuration

Features and Benefits

- 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.
- **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

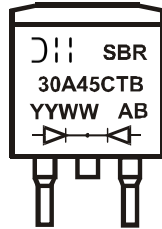
- Case: TO263 (D²PAK)
- Case Material: Molded Plastic, "Green" Molding compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin annealed over Copper Lead frame. Solderable per MIL-STD-202, Method 208 
- Polarity: See Below
- Weight: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

Ordering Information (Notes 4)

| Part Number | Qualification | Case | Packaging |
|------------------|---------------|-------|-----------------|
| SBR30A45CTB | Commercial | TO263 | 50 pieces/tube |
| SBR30A45CTB-G | Commercial | TO263 | 50 pieces/tube |
| SBR30A45CTB-13 | Commercial | TO263 | 800/Tape & Reel |
| SBR30A45CTB-13-G | Commercial | TO263 | 800/Tape & Reel |
| SBR30A45CTBQ-13 | Automotive | 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



SBR30A45CTB = Product Type Marking Code
 AB = Foundry and Assembly Code
 YYWW = Date Code Marking
 YY = Last two digits of year (ex: 14 = 2024)
 WW = Week (01 – 53)

Maximum Ratings (@T_A = +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 _{RRM} | 45 | V |
| Working Peak Reverse Voltage | V _{RWM} | | |
| DC Blocking Voltage | V _{RM} | | |
| Average Rectified Output Current | I _O | 30 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load | I _{FSM} | 175 | A |
| Repetitive Peak Avalanche Power (1μs, 25°C) | P _{ARM} | 8000 | W |

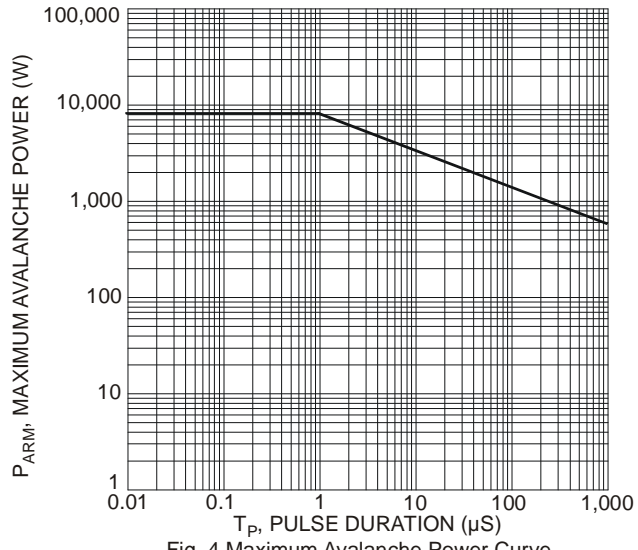
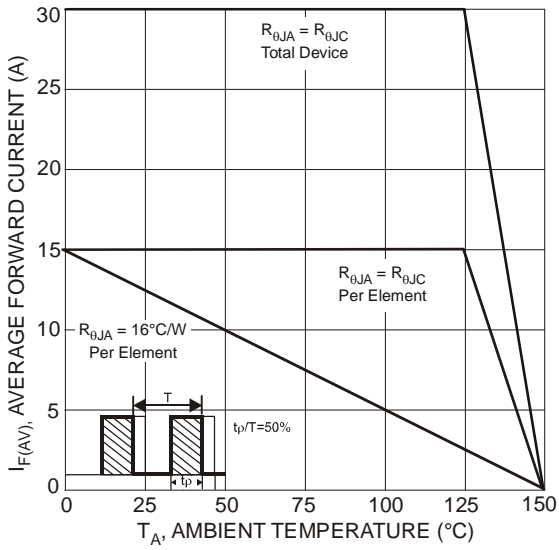
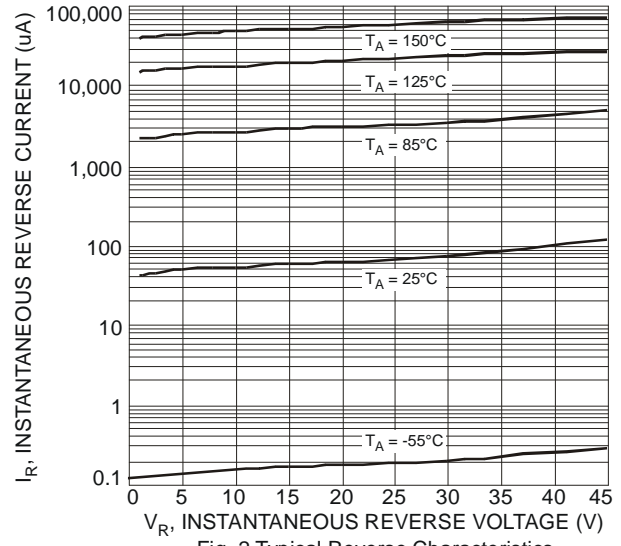
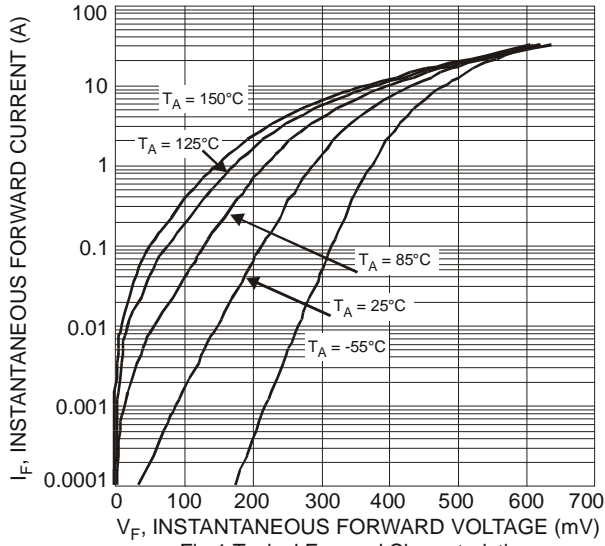
Thermal Characteristics

| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Typical Thermal Resistance (per leg) | R _{θJC} | 3 | °C/W |
| Thermal Resistance Junction to Case (Note 5) | R _{θJA} | 17 | |
| Thermal Resistance Junction to Ambient (Note 5) | | | |
| Operating and Storage Temperature Range | T _J , T _{STG} | -65 to +150 | °C |

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

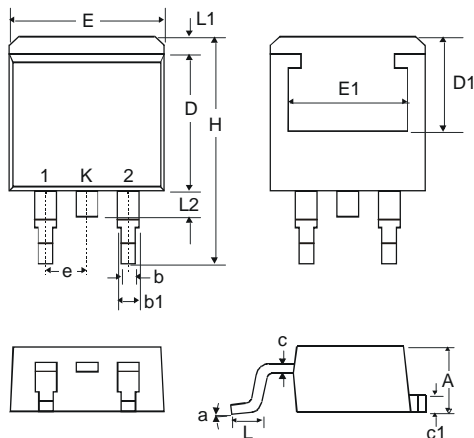
| Characteristic | Symbol | Min | Typ | Max | Unit | Test Condition |
|--------------------------------|----------------|-----|-----|------|------|---|
| Forward Voltage Drop (per leg) | V _F | - | - | 0.55 | V | I _F = 15A, T _J = +25°C |
| | | - | - | 0.52 | | I _F = 15A, T _J = +125°C |
| Leakage Current (Note 6) | I _R | - | - | 0.5 | mA | V _R = 45V, T _J = +25°C |
| | | - | - | 100 | | V _R = 45V, T _J = +125°C |

Notes: 5. Device mounted on additional heatsink, (2inch*2inch Al board + 50mm*50mm*23mm Al heatsink.)
 6. Short duration pulse test used to minimize self-heating effect.



Package Outline Dimensions

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

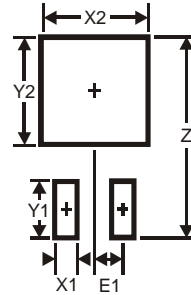


| TO263 | | |
|----------------------|----------|-------|
| Dim | Min | Max |
| A | 4.07 | 4.82 |
| b | 0.51 | 0.99 |
| b1 | 1.15 | 1.77 |
| c | 0.356 | 0.58 |
| c1 | 1.143 | 1.65 |
| D | 8.39 | 9.65 |
| D1 | 6.55 | — |
| E | 9.66 | 10.66 |
| E1 | 6.23 | — |
| e | 2.54 Typ | |
| H | 14.61 | 15.87 |
| L | 1.78 | 2.79 |
| L1 | — | 1.67 |
| L2 | — | 1.77 |
| a | 0° | 8° |
| All Dimensions in mm | | |

Suggested Pad Layout

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

| Dimensions | Value (in mm) |
|------------|---------------|
| Z | 16.9 |
| X1 | 1.1 |
| X2 | 10.8 |
| Y1 | 3.5 |
| Y2 | 7.01 |
| E1 | 2.5 |



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