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[Diodes Incorporated](#)  
[SBR30A45CTB](#)

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**SBR30A45CTB**

**30A SBR®**

**SUPER BARRIER RECTIFIER**

## 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



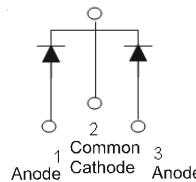
Top View

## 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 (D<sup>2</sup>PAK)
- 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 (ESD)
- Polarity: See Below
- Weight: 1.6 grams (approximate)



Package Pin-Out Configuration

## 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 |

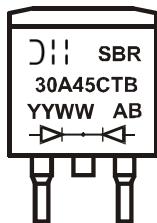
Notes:

- EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant. All applicable RoHS exemptions applied.
- See [http://www.diodes.com/quality/lead\\_free.html](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.
- 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 <http://www.diodes.com/products/packages.html>.



**SBR30A45CTB**

## 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 (@ $T_A = +25^\circ\text{C}$ , 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   | $V_{RRM}$ |       |      |
| Working Peak Reverse Voltage  | $V_{RWM}$ | 45    | V    |
| DC Blocking Voltage   | $V_{RM}$  |       |      |
| Average Rectified Output Current  | $I_O$     | 30    | A    |
| Non-Repetitive Peak Forward Surge Current 8.3ms<br>Single Half Sine-Wave Superimposed on Rated Load | $I_{FSM}$ | 175   | A    |
| Repetitive Peak Avalanche Power<br>(1μs, 25°C)  | $P_{ARM}$ | 8000  | W    |

## Thermal Characteristics

| Characteristic                                  | Symbol          | Value       | Unit |
|---|-----------------|-------------|------|
| Typical Thermal Resistance (per leg)            | $R_{\theta JC}$ | 3           |      |
| Thermal Resistance Junction to Case (Note 5)    | $R_{\theta JA}$ | 17          | °C/W |
| Thermal Resistance Junction to Ambient (Note 5) |                 |             |      |
| Operating and Storage Temperature Range         | $T_J, T_{STG}$  | -65 to +150 | °C   |

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

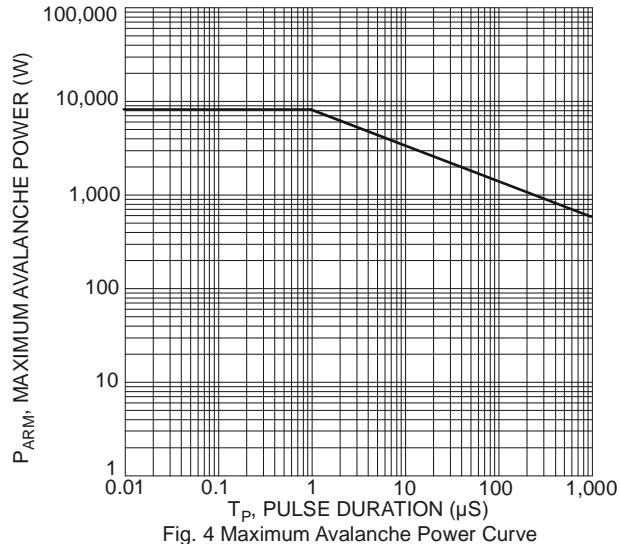
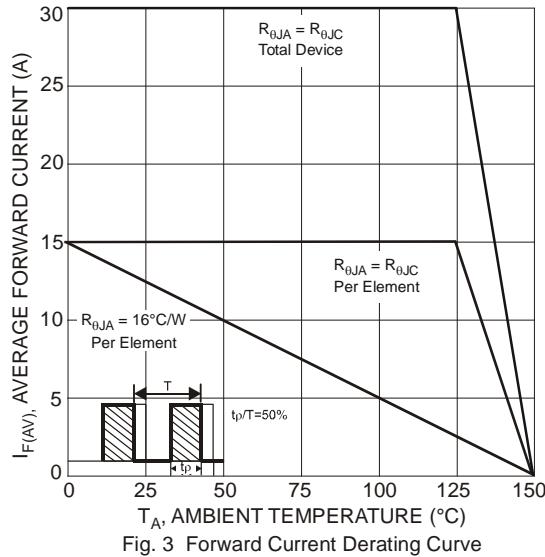
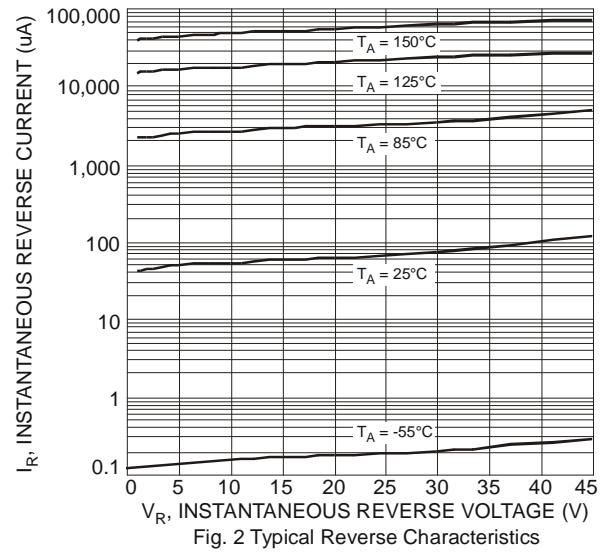
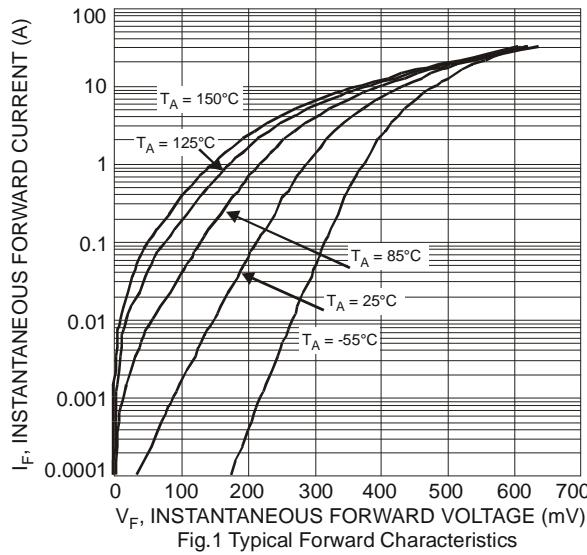
| Characteristic                 | Symbol | Min | Typ | Max          | Unit | Test Condition  |
|--------------------------------|--------|-----|-----|--------------|------|---|
| Forward Voltage Drop (per leg) | $V_F$  | -   | -   | 0.55<br>0.52 | V    | $I_F = 15\text{A}, T_J = +25^\circ\text{C}$<br>$I_F = 15\text{A}, T_J = +125^\circ\text{C}$ |
| Leakage Current (Note 6)       | $I_R$  | -   | -   | 0.5<br>100   | mA   | $V_R = 45\text{V}, T_J = +25^\circ\text{C}$<br>$V_R = 45\text{V}, T_J = +125^\circ\text{C}$ |

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.

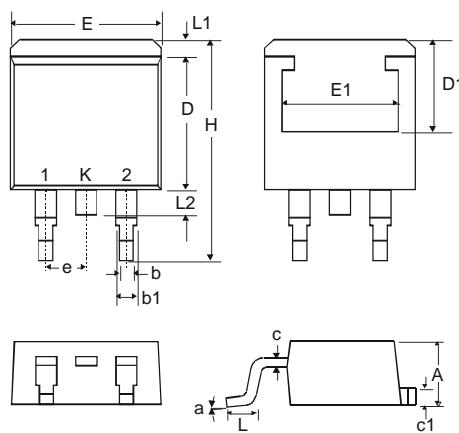


**SBR30A45CTB**



## Package Outline Dimensions

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



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

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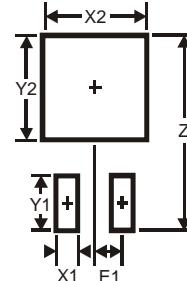
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October 2014  
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## Suggested Pad Layout

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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