

## Product Summary

<b>V<sub>RMM</sub> (V)</b>	<b>I<sub>o</sub> (A)</b>	<b>V<sub>F(MAX)</sub> (V) @ +25°C</b>	<b>I<sub>R(MAX)</sub> (mA) @ +25°C</b>
45	15 (Per leg) 30 (Total)	0.55	0.48

## Description and Applications

The SBR30E45CTB 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



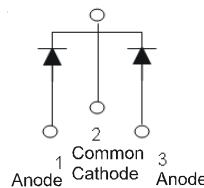
Top View

## 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)

## Mechanical Data

- Case: TO263AB (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 Leadframe; Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: See Below
- Weight: 1.6 grams (Approximate)



Package Pin-Out Configuration

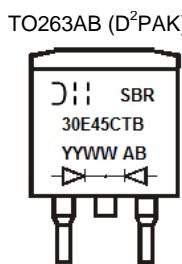
## Ordering Information (Notes 4)

Part Number	Qualification	Case	Packaging
SBR30E45CTB	Commercial	TO263AB (D²PAK)	50 pieces/tube
SBR30E45CTB-13	Commercial	TO263AB (D²PAK)	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](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



SBR30E45CTB = Product Type Marking Code  
AB = Foundry and Assembly Code  
YYWW = Date Code Marking  
YY = Last Two Digits of Year (ex: 15 = 2015)  
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	$I_{FSM}$	250	A
Single Half Sine-Wave Superimposed on Rated Load			

Parameter	Symbol	Value	Unit
Human Body Model ESD Protection	ESD HBM	8	kV
Machine Model ESD Protection	ESD MM	400	V

Caution: Stresses greater than the 'Absolute Maximum Ratings' specified above, may cause permanent damage to the device. These are stress ratings only; functional operation of the device at these or any other conditions exceeding those indicated in this specification is not implied. Device reliability may be affected by exposure to absolute maximum rating conditions for extended periods of time.

Semiconductor devices are ESD sensitive and may be damaged by exposure to ESD events. Suitable ESD precautions should be taken when handling and transporting these devices

**Thermal Characteristics**

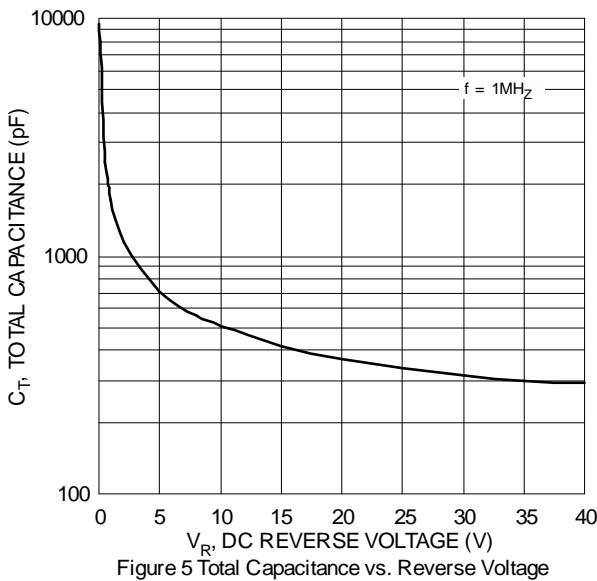
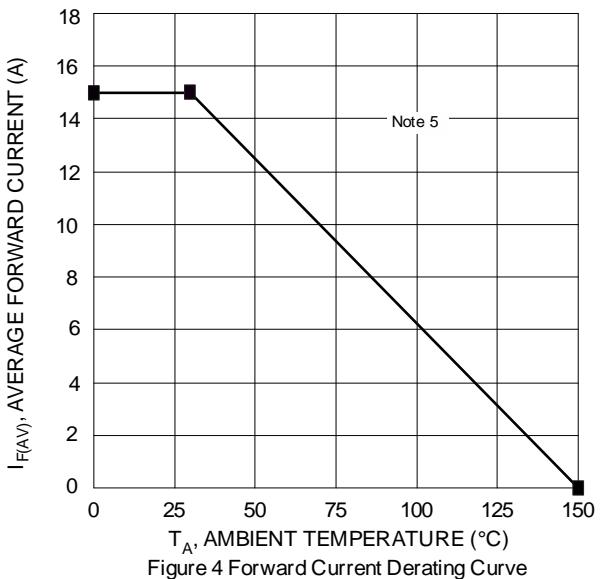
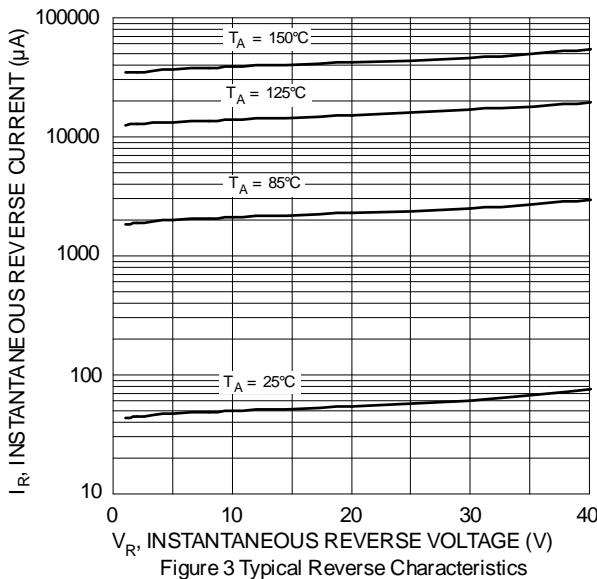
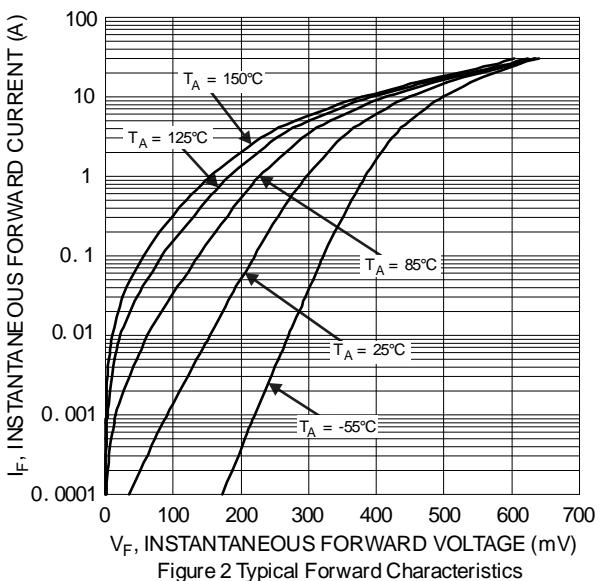
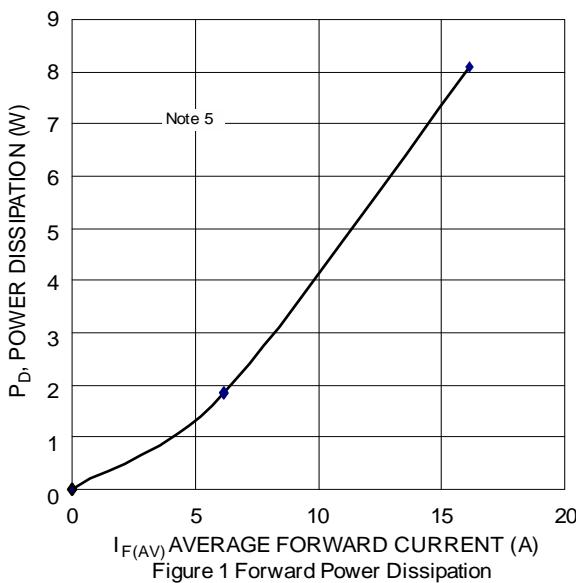
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance (per leg)			
Thermal Resistance Junction to Case (Note 5)	$R_{\theta JC}$	3	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	16	$^\circ\text{C/W}$
Operating and Storage Temperature Range	$T_J, T_{STG}$	-65 to +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)	$V_F$	-	0.51	0.55	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)	$I_R$	-	0.1	0.48	mA	$V_R = 45\text{V}, T_J = +25^\circ\text{C}$ $V_R = 45\text{V}, T_J = +125^\circ\text{C}$

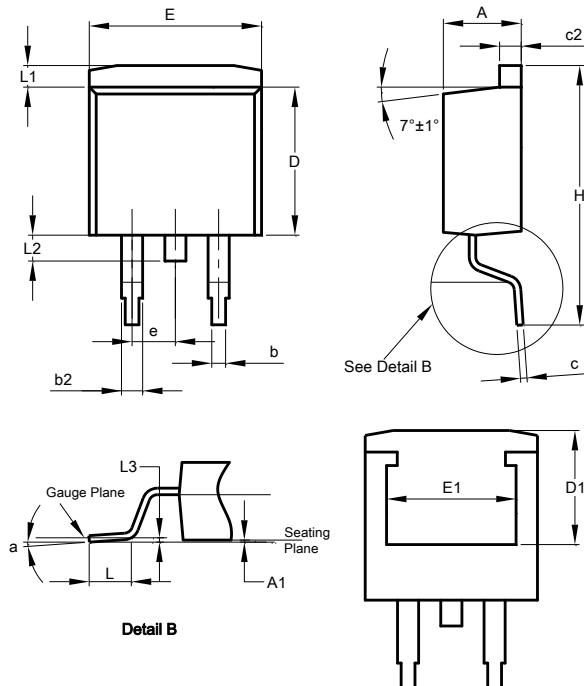
Notes: 5. Device mounted on additional heatsink 2inch x 2inch Al board.

6. Short duration pulse test used to minimize self-heating effect.



## Package Outline Dimensions

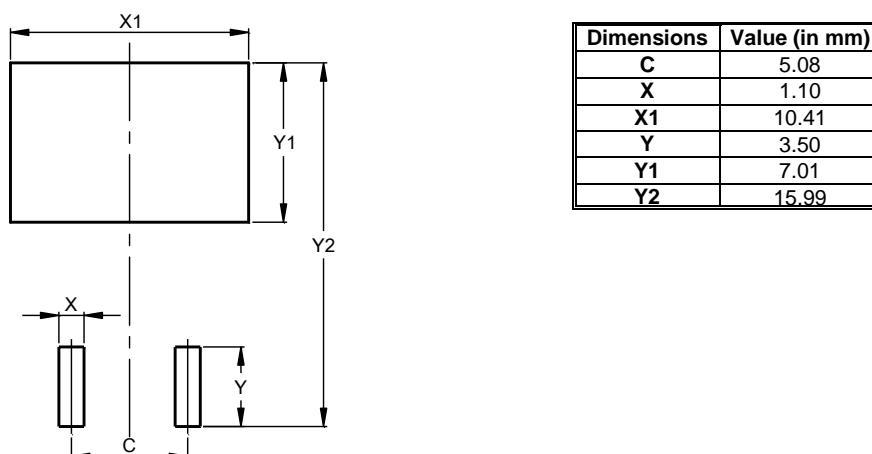
Please see AP02001 at <http://www.diodes.com/datasheets/ap02001.pdf> for the latest version.



TO263AB (D²PAK)			
Dim	Min	Max	Typ
<b>A</b>	4.07	4.82	-
<b>A1</b>	0.00	0.25	-
<b>b</b>	0.51	0.99	-
<b>b2</b>	1.15	1.77	-
<b>c</b>	0.356	0.73	-
<b>c2</b>	1.143	1.65	-
<b>D</b>	8.39	9.65	-
<b>D1</b>	6.55	6.95	-
<b>e</b>	2.54 TYP		-
<b>E</b>	9.66	10.66	-
<b>E1</b>	6.23	8.23	-
<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>L3</b>	-	-	0.254
<b>a</b>	0°	8°	-
All Dimensions in mm			

## Suggested Pad Layout

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



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