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

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**

Description and Applications

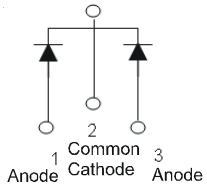
The SBR30A45CTB provides very low V_F and excellent reverse leakage stability at high temperatures. It is ideal for use as a rectifier, freewheel diode or blocking diode in:

- DC/DC Converters
- AC/DC Adaptors

Mechanical Data

- Case: TO263 (D^2PAK)
- 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 e3
- Polarity: See Below
- Weight: 1.6 grams (approximate)

Top View



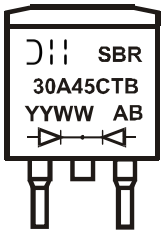
Package Pin-Out Configuration

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:
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 Working Peak Reverse Voltage DC Blocking Voltage	V_{RRM} V_{RWM} V_{RM}	45	V
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, 25ºC)	P_{ARM}	8000	W

Thermal Characteristics

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

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 0.52	V	I_F = 15A, T_J = +25ºC I_F = 15A, T_J = +125ºC
Leakage Current (Note 6)	I_R	- -	- -	0.5 100	mA	V_R = 45V, T_J = +25ºC V_R = 45V, T_J = +125ºC

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.

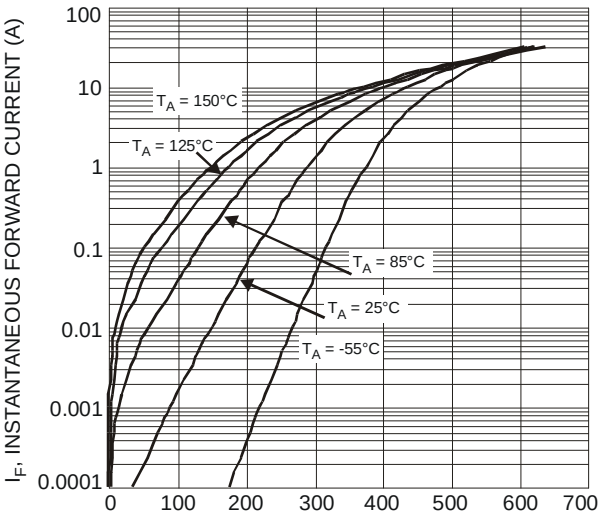


Fig.1 Typical Forward Characteristics

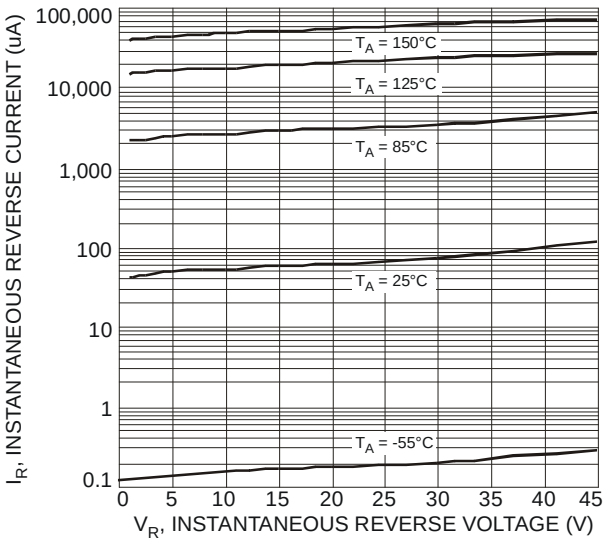


Fig. 2 Typical Reverse Characteristics

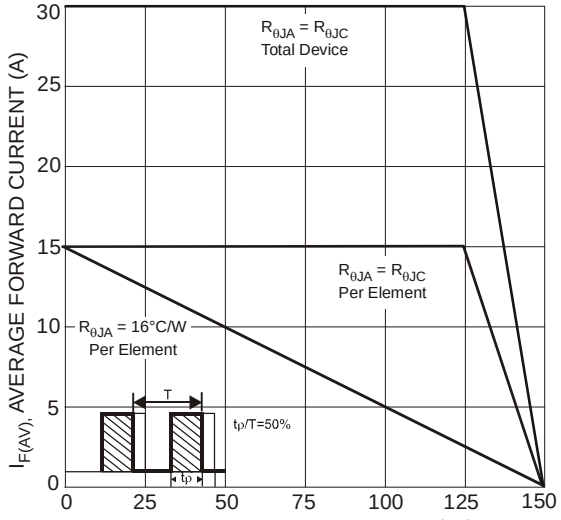


Fig. 3 Forward Current Derating Curve

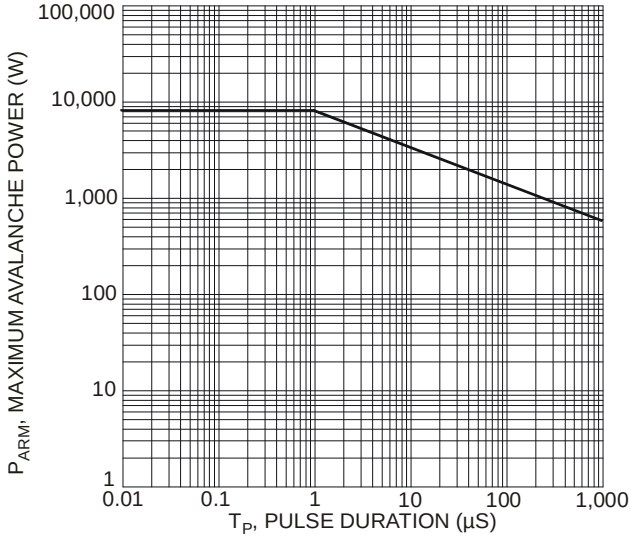
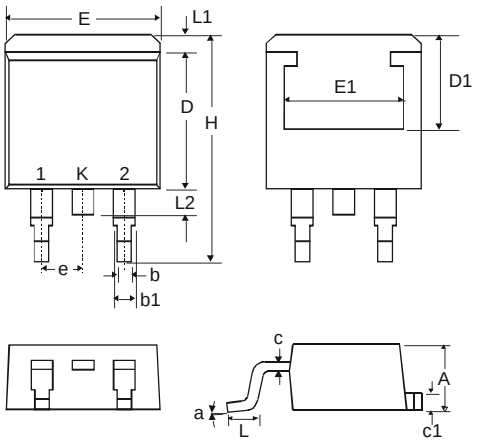


Fig. 4 Maximum Avalanche Power Curve

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