



**THE DATASHEET OF
SBR10U45D1-T**



Product Summary (@ T_A = +25°C)

V _{RRM} (V)	I _O (A)	V _{F(MAX)} (V)	I _{R(MAX)} (mA)
45	10	0.57	0.5

Applications

- Switching Power Supplies
- DC-DC Converter
- Freewheeling Diodes

Features and Benefits

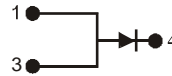
- Ultra-Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- **Lead-Free Finish; RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**

Mechanical Data

- Case: TO252 (DPAK)
- 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 Annealed over Copper Leadframe.
Solderable per MIL-STD-202, Method 208@3
- Polarity: See Below
- Weight: 0.4 grams (Approximate)



Top View

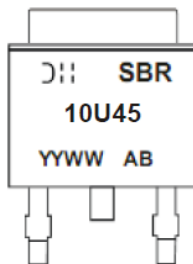


Package Pin Out Configuration

Ordering Information (Note 4)

Part Number	Case	Packaging
SBR10U45D1-13	TO252 (DPAK)	2500 pieces/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


SBR10U45 = 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}	45	V
Working Peak Reverse Voltage	V_{RWM}		
DC Blocking Voltage	V_{RM}		
RMS Reverse Voltage	$V_{R(RMS)}$	31	V
Average Rectified Output Current @ $T_C = +110^\circ\text{C}$	I_O	10	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	125	A

Thermal Characteristics @ $T_A = +25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance			
Thermal Resistance Junction to Case	$R_{\theta JC}$	6.0	$^\circ\text{C/W}$
Thermal Resistance Junction to Ambient (Note 5)	$R_{\theta JA}$	35	
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	V_F	-	-	0.57	V	$I_F = 10\text{A}, T_J = 25^\circ\text{C}$
				0.54		$I_F = 10\text{A}, T_J = 125^\circ\text{C}$
Leakage Current (Note 6)	I_R	-	-	0.5	mA	$V_R = 45\text{V}, T_J = 25^\circ\text{C}$

Notes: 5. Device mounted on 2inch sq. Al board, minimum recommended pad layout as shown on Diodes Inc., suggested pad layout document AP02001, which can be found on our website at <http://www.diodes.com>.
6. Short duration pulse test used to minimize self-heating effect.

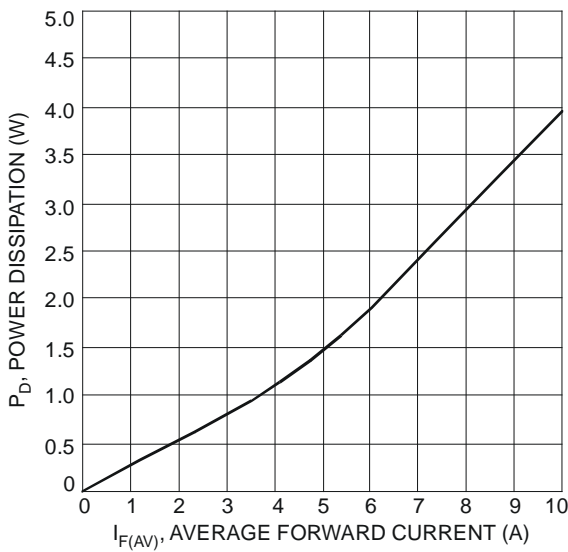


Fig. 1 Forward Power Dissipation

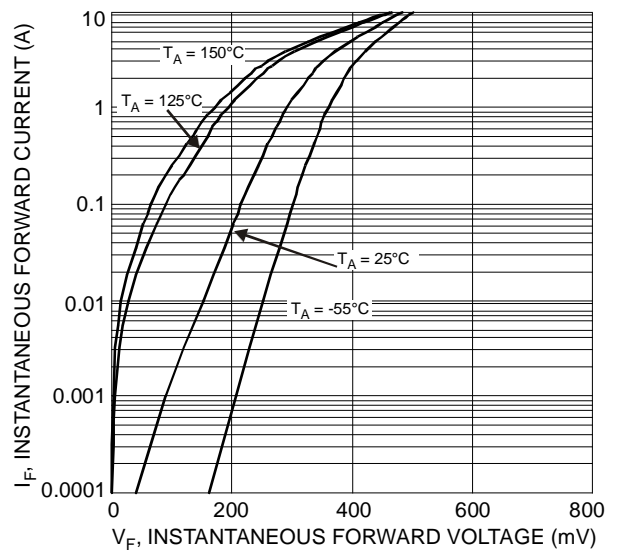


Fig. 2 Typical Forward Characteristics

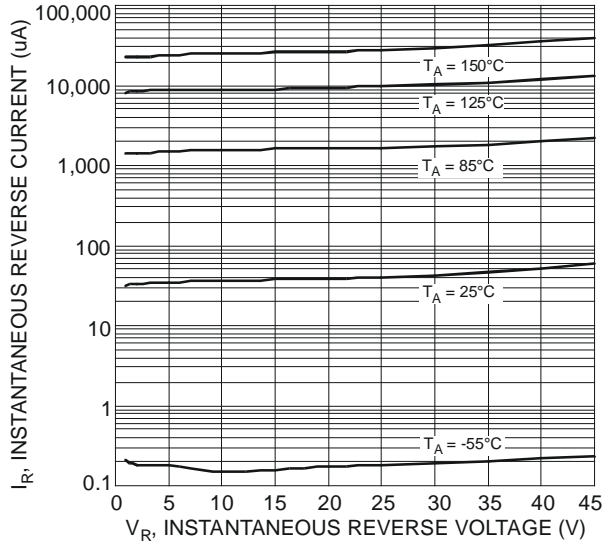


Fig. 3 Typical Reverse Characteristics

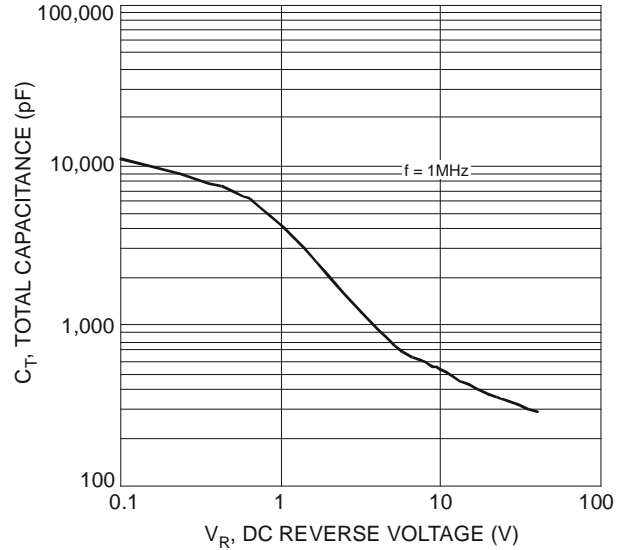


Fig. 4 Total Capacitance vs. Reverse Voltage

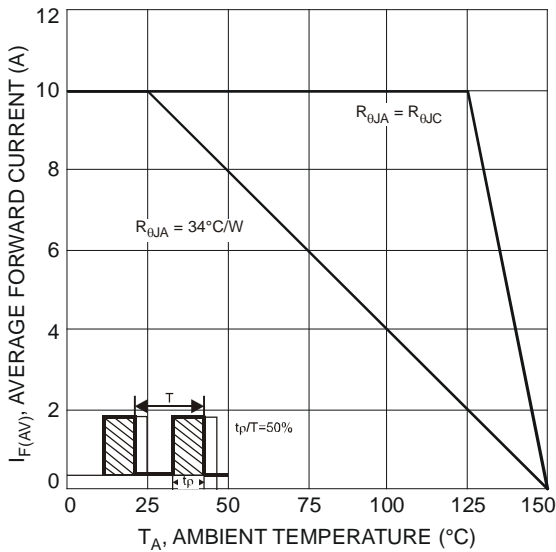


Fig. 5 Forward Current Derating Curve

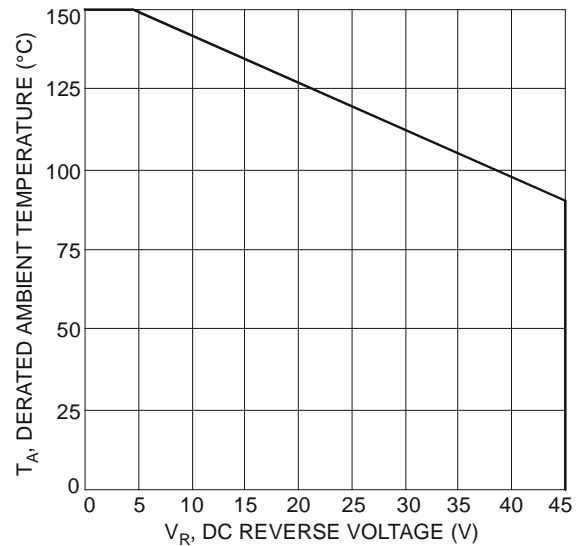
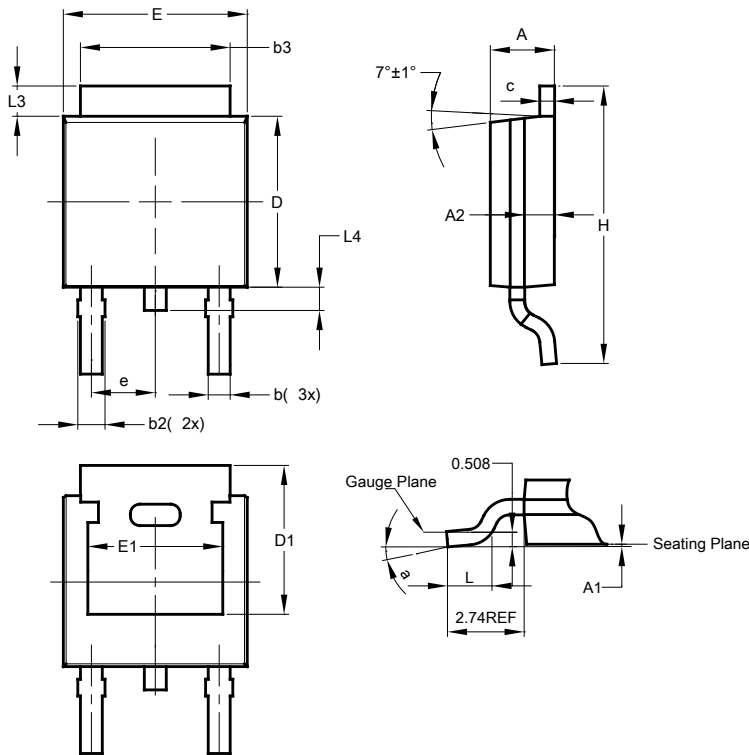


Fig. 6 Operating Temperature Derating

Package Outline Dimensions

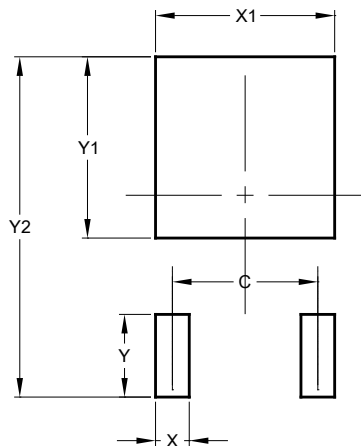
Please see AP02002 at <http://www.diodes.com/datasheets/ap02002.pdf> for latest version.



TO252 (DPAK)			
Dim	Min	Max	Typ
A	2.19	2.39	2.29
A1	0.00	0.13	0.08
A2	0.97	1.17	1.07
b	0.64	0.88	0.783
b2	0.76	1.14	0.95
b3	5.21	5.46	5.33
c	0.45	0.58	0.531
D	6.00	6.20	6.10
D1	5.21	-	-
e	-	-	2.286
E	6.45	6.70	6.58
E1	4.32	-	-
H	9.40	10.41	9.91
L	1.40	1.78	1.59
L3	0.88	1.27	1.08
L4	0.64	1.02	0.83
a	0°	10°	-
All Dimensions in mm			

Suggested Pad Layout

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



Dimensions	Value (in mm)
C	4.572
X	1.060
X1	5.632
Y	2.600
Y1	5.700
Y2	10.700

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