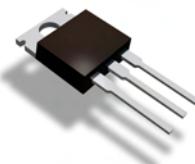


Features

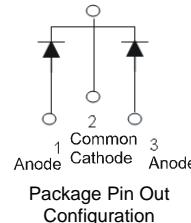
- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- 150°C Operating Junction Temperature
- **Lead Free Finish, RoHS Compliant (Note 2)**



Top View

Mechanical Data

- Case: TO-220AB
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 (E3)
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 2.1 grams (approximate)



Package Pin Out Configuration

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}		
RMS Reverse Voltage	$V_{R(\text{RMS})}$	32	V
Average Rectified Output Current @ $T_C = 150^\circ\text{C}$	I_O	40	A
Non-Repetitive Peak Forward Surge Current 8.3ms	I_{FSM}	280	A
Single Half Sine-Wave Superimposed on Rated Load			

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance (per leg)			
Thermal Resistance Junction to Case (Note 3)	$R_{\theta JC}$	2	°C/W
Thermal Resistance, Junction to Ambient (Note 3)	$R_{\theta JA}$	10	
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
Reverse Breakdown Voltage (Note 1)	$V_{(R)R}$	45	-	-	V	$I_R = 1\text{mA}$
Forward Voltage Drop (per leg)	V_F	-	0.47	0.52	V	$I_F = 20\text{A}, T_J = 25^\circ\text{C}$ $I_F = 20\text{A}, T_J = 125^\circ\text{C}$
Leakage Current (Note 1)	I_R	-	0.2	0.6	mA	$V_R = 45\text{V}, T_J = 25^\circ\text{C}$ $V_R = 45\text{V}, T_J = 125^\circ\text{C}$

Notes:

1. Short duration pulse test used to minimize self-heating effect.
2. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see *EU Directive 2002/95/EC Annex Notes*.
3. Device mounted on heatsink (Black Aluminum, 37mm * 50mm * 15mm)

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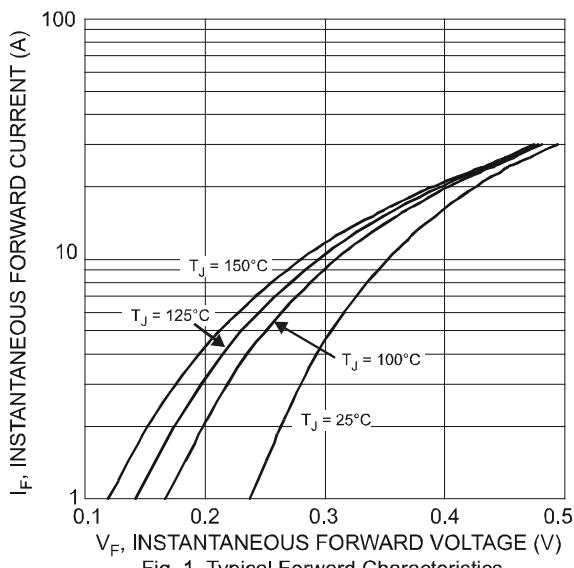


Fig. 1 Typical Forward Characteristics

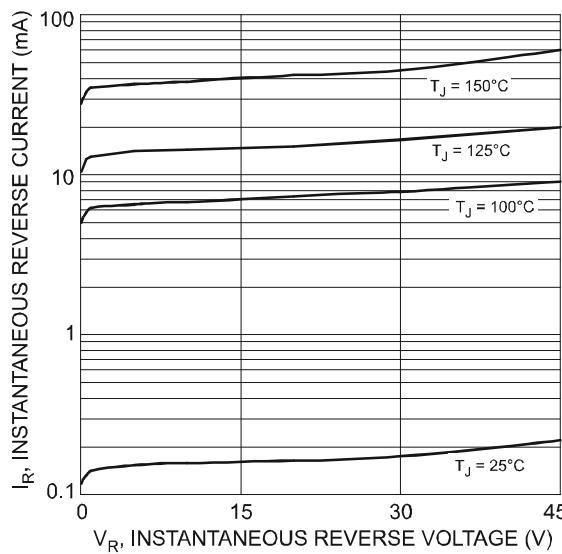


Fig. 2 Typical Reverse Characteristics

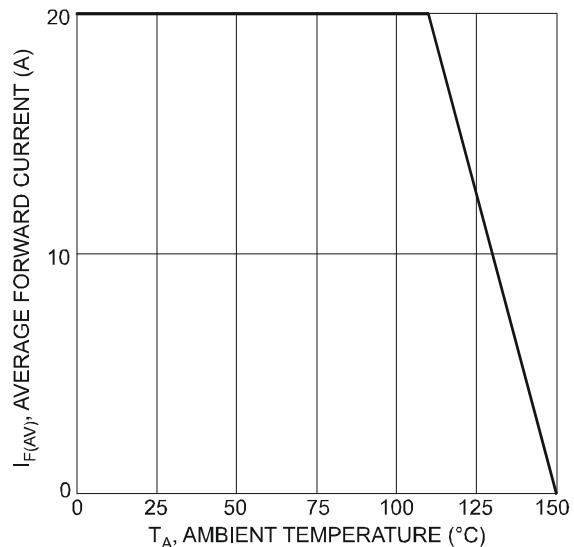


Fig. 3 Forward Current Derating, Curve

Ordering Information (Note 4)

Part Number	Case	Packaging
SBR40U45CT	TO-220AB	50 pieces/tube

Notes: 4. For packaging details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

Marking Information



SBR40U45CT = Product Type Marking Code

AB = Foundry and Assembly Code

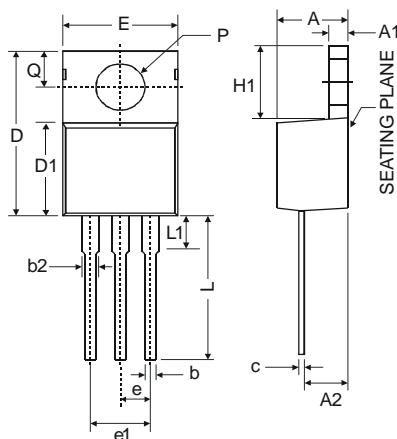
YYWW = Date Code Marking

YY = Last two digits of year, ex: 07 = 2007

WW = Week (01-52)

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Package Outline Dimensions



TO-220AB			
Dim	Min	Typ	Max
A	3.56	-	4.82
A1	0.51	-	1.39
A2	2.04	-	2.92
b	0.39	0.81	1.01
b2	1.15	1.24	1.77
c	0.356	-	0.61
D	14.22	-	16.51
D1	8.39	-	9.01
e	2.54		
e1	5.08		
E	9.66	-	10.66
H1	5.85	-	6.85
L	12.70	-	14.73
L1	-	-	6.35
P	3.54	-	4.08
Q	2.54	-	3.42

All Dimensions in mm

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