

## Features

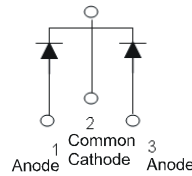
- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- 150°C Operating Junction Temperature
- **Lead Free Finish, RoHS Compliant (Note 2)**



Top View

## Mechanical Data

- Case: TO-220AB
- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020D
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 <sup>(E3)</sup>
- Marking Information: See Page 2
- Ordering Information: See Page 2
- Weight: 2.1 grams (approximate)



Package Pin Out Configuration

## Maximum Ratings @T<sub>A</sub> = 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	V <sub>RRM</sub>	45	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>RM</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	32	V
Average Rectified Output Current @ T <sub>C</sub> = 150°C	I <sub>O</sub>	40	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	280	A

## Thermal Characteristics

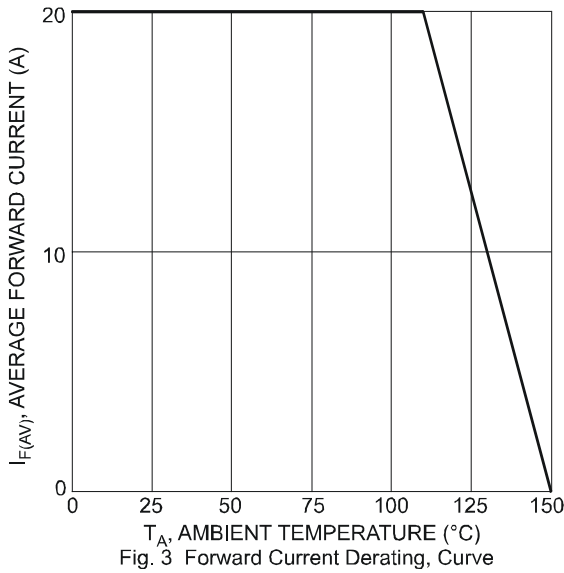
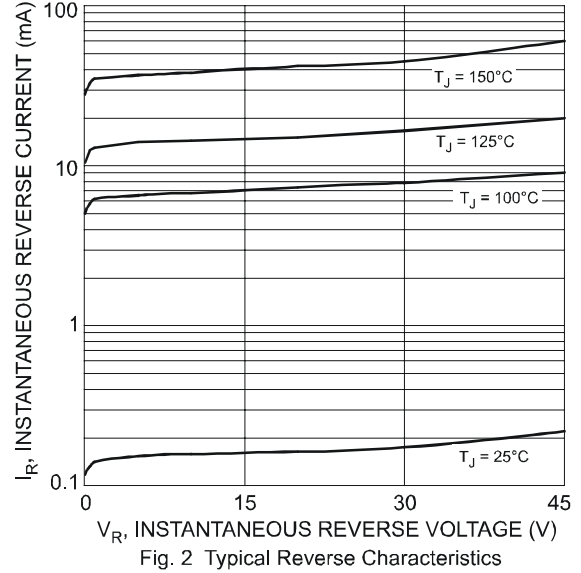
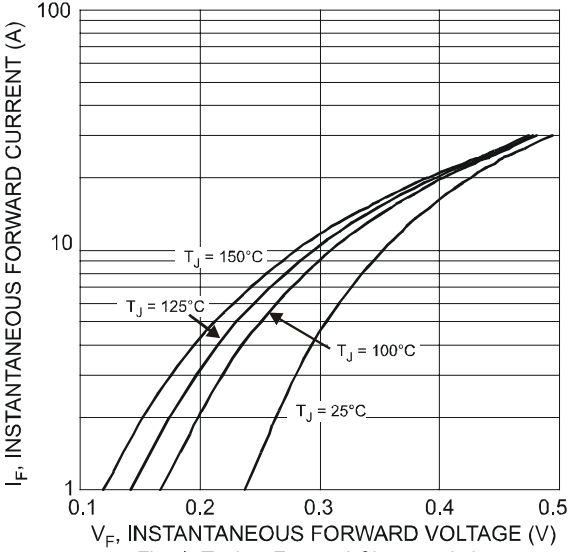
Characteristic	Symbol	Value	Unit
Maximum Thermal Resistance (per leg)	R <sub>θJC</sub>	8	°C/W
Thermal Resistance Junction to Case (Note 3)			
Thermal Resistance, Junction to Ambient (Note 3)	R <sub>θJA</sub>	60	
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

## Electrical Characteristics @T<sub>A</sub> = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 1)	V <sub>(R)R</sub>	45	-	-	V	I <sub>R</sub> = 1mA
Forward Voltage Drop (per leg)	V <sub>F</sub>	-	0.43 0.39	0.47 0.42	V	I <sub>F</sub> = 20A, T <sub>J</sub> = 25°C I <sub>F</sub> = 20A, T <sub>J</sub> = 125°C
Leakage Current (Note 1)	I <sub>R</sub>	-	0.25 20	1 200	mA	V <sub>R</sub> = 45V, T <sub>J</sub> = 25°C V <sub>R</sub> = 45V, T <sub>J</sub> = 125°C

- Notes:
1. Short duration pulse test used to minimize self-heating effect.
  2. RoHS revision 13.2.2003. High temperature solder exemption applied, see *EU Directive Annex Note 7*.
  3. FR-4 PCB, 2 oz. Copper, minimum recommended pad layout per <http://www.diodes.com/datasheets/ap02001.pdf>

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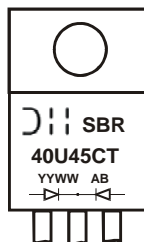


**Ordering Information** (Note 4)

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>.

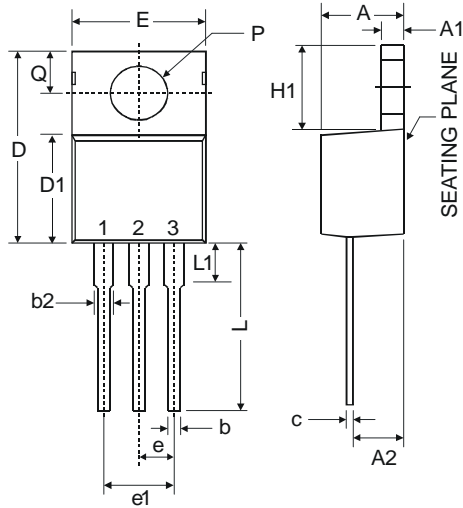
**Marking Information**



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
<b>A</b>	3.56	-	4.82
<b>A1</b>	0.51	-	1.39
<b>A2</b>	2.04	-	2.92
<b>b</b>	0.39	0.81	1.01
<b>c</b>	0.356	-	0.61
<b>D</b>	14.22	-	16.51
<b>D1</b>	8.39	-	9.01
<b>e</b>	2.54		
<b>e1</b>	5.08		
<b>E</b>	9.66	-	10.66
<b>H1</b>	5.85	-	6.85
<b>L</b>	12.70	-	14.73
<b>L1</b>	-	-	6.35
<b>P</b>	3.54	-	4.08
<b>Q</b>	2.54	-	3.42
<b>All Dimensions in mm</b>			

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