



**THE DATASHEET OF  
SBR20A45CT**

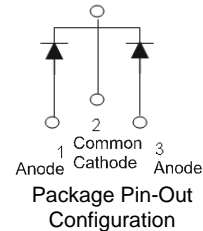
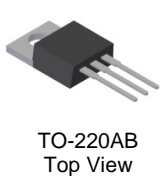


## Features

- 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)**
- **Also Available in Green Molding Compound (Note 4)**
  - **Halogen and Antimony Free. "Green" Device (Note 3)**

## Mechanical Data

- Case: TO-220AB, ITO-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 <sup>(3)</sup>
- Weight: TO-220AB – 1.85 grams (approximate)  
ITO-220AB – 1.65 grams (approximate)

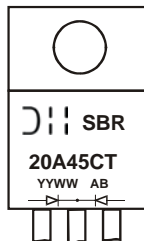


## Ordering Information (Notes 4 and 5)

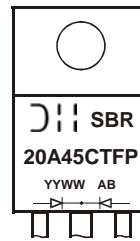
	Part Number	Case	Packaging
	SBR20A45CT	TO-220AB	50 pieces/tube
	SBR20A45CT-G	TO-220AB	50 pieces/tube
	SBR20A45CTFP	ITO-220AB	50 pieces/tube
	SBR20A45CTFP-G	ITO-220AB	50 pieces/tube
	SBR20A45CTFP-JT	ITO-220AB (Alternate)	50 pieces/tube

- 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> 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 Green Molding Compound version part numbers, add "-G" suffix to part number above. Examples: SBR2A45CT-G.
  5. For packaging details, go to our website at <http://www.diodes.com>.

## Marking Information



SBR20A45CT = Product Type Marking Code  
AB = Foundry and Assembly Code  
YYWW = Date Code Marking  
YY = Last two digits of year (ex: 06 = 2006)  
WW = Week (01 - 53)



SBR20A45CTFP = Product Type Marking Code  
AB = Foundry and Assembly Code  
YYWW = Date Code Marking  
YY = Last two digits of year (ex: 06 = 2006)  
WW = Week (01 - 53)

### Maximum Ratings (Per Leg) (@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>		
Average Rectified Output Current Per Device	I <sub>O</sub>	10	A
(Per Leg) (Total)		20	
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>	180	A
Peak Repetitive Reverse Surge Current (2μS - 1KHz)	I <sub>RRM</sub>	3	A
Isolation Voltage (ITO-220AB Only) From terminal to heatsink t = 3 sec.	V <sub>AC</sub>	2000	V

### Thermal Characteristics (Per Leg)

Characteristic	Symbol	Value	Unit
Typical Thermal Resistance Package = TO-220AB	R <sub>θJC</sub>	2	°C/W
Package = ITO-220AB		4	
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-65 to +150	°C

### Electrical Characteristics (Per Leg) (@T<sub>A</sub> = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Forward Voltage Drop	V <sub>F</sub>	-	-	0.50	V	I <sub>F</sub> = 10A, T <sub>J</sub> = +25°C
			0.41	0.47		I <sub>F</sub> = 10A, T <sub>J</sub> = +125°C
			-	0.60		I <sub>F</sub> = 20A, T <sub>J</sub> = +25°C
Leakage Current (Note 6)	I <sub>R</sub>	-	-	0.5	mA	V <sub>R</sub> = 45V, T <sub>J</sub> = +25°C
				100		V <sub>R</sub> = 45V, T <sub>J</sub> = +125°C

Notes: 6. Short duration pulse test used to minimize self-heating effect.  
 7. Using heatsink (by Black Aluminum, (45mm \* 20mm \* 12mm))

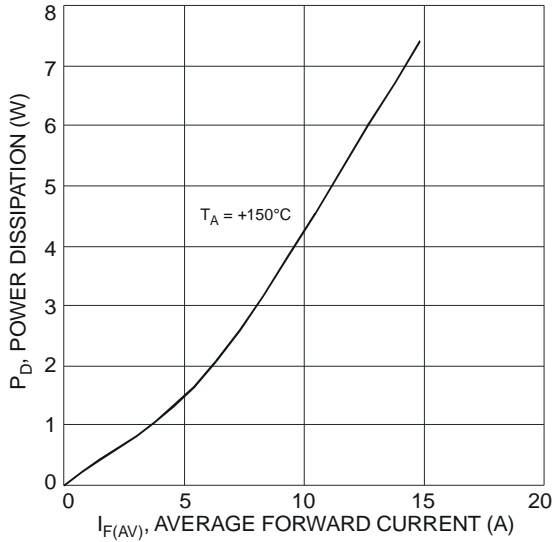


Figure 1 Forward Power Dissipation

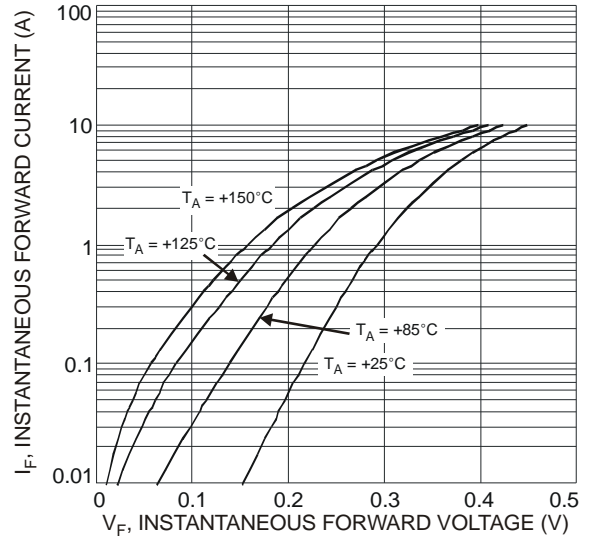


Figure 2 Typical Forward Characteristics

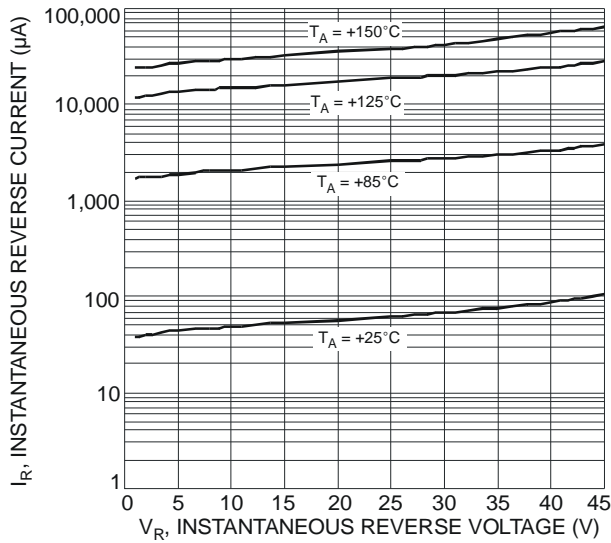


Figure 3 Typical Reverse Characteristics

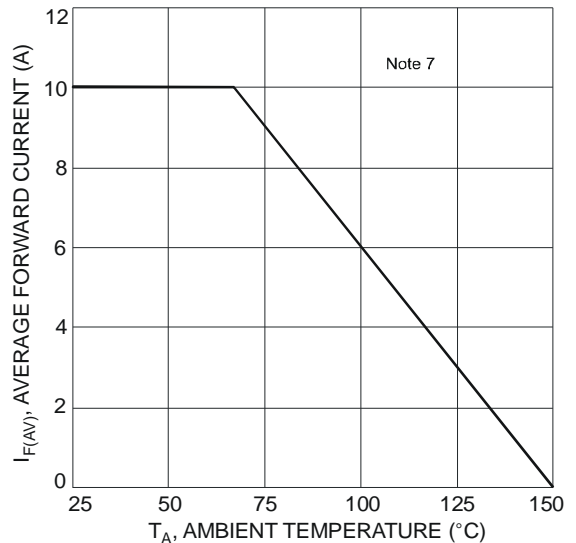


Figure 4 Forward Current Derating Curve

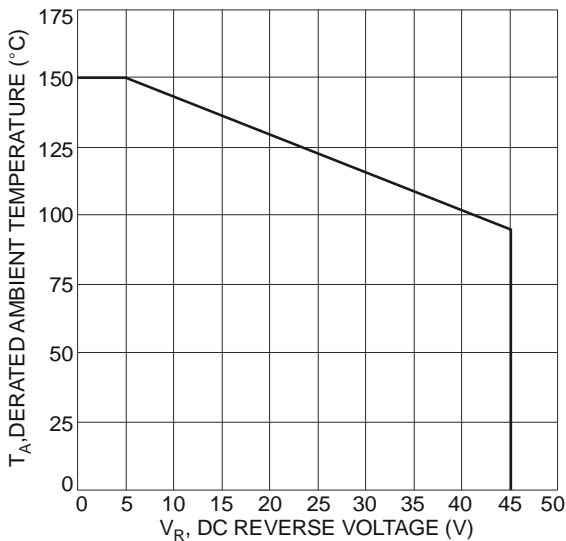
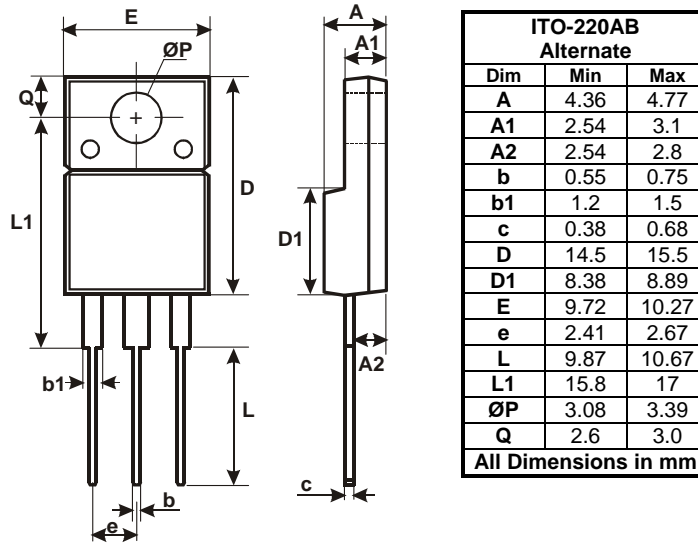
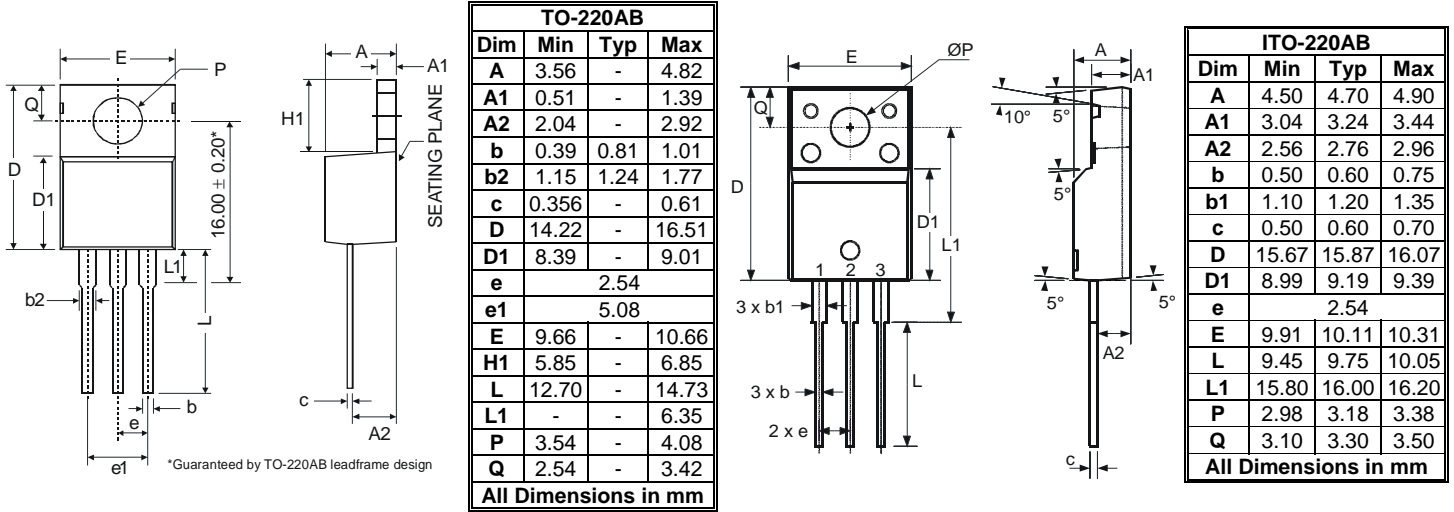


Figure 5 Operating Temperature Derating

## Package Outline Dimensions

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



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